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ABSTRACT

The National Food Service Management Institute (NFSMI) has conducted a project to develop guidelines on the type of preparation equipment needed in school kitchens to produce meals that meet the nutrition standards of the Dietary Guidelines for Americans (DGA). The guidelines provide detailed descriptions of food preparation equipment items, questions to consider when purchasing each equipment item, and forms that food service directors can use for equipment purchasing. Each equipment description provides the numbers of meals prepared per day and the number and type of equipment needed to meet each volume level. The guidelines also present two sets of cycle menus for breakfast and lunch that met USDA regulations, were consistent with the nutrition principles of the DGAs, and were representative of menus served in schools. Appendices provide samples of menus and equipment recommendations that were mailed to an expert panel, nutrient analysis of the cycle menus, equipment purchase decision forms, and suggested equipment for conventional kitchens. (Contains 22 references.) (GR)

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GUIDELINES FOR EQUIPMENT TO PREPARE HEALTHY MEALS

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GUIDELINES FOR EQUIPMENT TO PREPARE HEALTHY MEALS

by

Mary Frances Nettles, PhD, RD
Deborah H. Carr, MS, RD
Division of Applied Research
National Food Service Management Institute
Box 10077
Hattiesburg, MS 39406-0077

Phone: 601-266-5773
FAX: 601-266-4682

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PREFACE

Producing meals that meet nutrition standards and are acceptable to children is the cornerstone of Child Nutrition Programs. This report describes the efforts of the Division of Applied Research, National Food Service Management Institute, to determine the type of preparation equipment needed in schools to achieve this primary objective. This is the second report resulting from a comprehensive study on equipment and its relationship to the preparation of school meals that meet the Dietary Guidelines for Americans. We hope this document will be useful to district school foodservice directors/supervisors in evaluating their present food production units and in planning effectively equipped food production units for the schools of tomorrow.

We are indebted to the competent Applied Research staff who brought this research to reality. **Dr. Mary Frances Nettles** and **Ms. Deborah Carr** are responsible for the research and the writing of this comprehensive guideline on production equipment that resulted from research findings. **Ms. Lisa Odom** prepared the manuscript. We appreciate the hard work represented in this document.

Martha T. Conklin, PhD, RD
Director of Applied Research

Josephine Martin, PhD, RD
NFSMI Executive Director

TABLE OF CONTENTS

Preface . . . ii

Executive Summary . . . v

Introduction . . . 1

Phase I: Cycle Menus . . . 3

Phase II: Preparation Equipment Guidelines . . . 17

References . . . 57

Appendix A: Sample of Menus Mailed to Expert Panel . . . 59

Appendix B: Expert Panel/Participant List . . . 71

Appendix C: Nutrient Analysis of Cycle Menus . . . 77

Appendix D: Sample of Menu with Equipment Recommendations Mailed to Expert Panel . . . 95

Appendix E: Equipment Purchase Decision Forms . . . 107

Appendix F: Suggested Equipment for Conventional Kitchens . . . 179

LIST OF FIGURES

Figure 1. Breakfast and Lunch Cycle Menus 8

Figure 2. Preparation Equipment Guidelines for Conventional Kitchens 23

Figure 3. Preparation Equipment Descriptions and Questions to Consider 25

Detailed descriptions were prepared for the equipment items included in the guidelines. Additional questions to consider when purchasing each equipment item were developed. Forms adapted from the equipment descriptions were developed that can be used by foodservice directors when making purchase decisions for these equipment items.

The NFSMI plans to use these equipment guidelines to compare with the actual equipment found in schools to determine whether school kitchens appear to be adequately equipped to offer menus consistent with the DGAs. This document also will be useful to school foodservice directors as a reference guide for the type and capacity of preparation equipment recommended for school kitchens. Foodservice facilities consultants and kitchen planners also will find this document helpful in designing kitchen facilities for schools.

GUIDELINES FOR EQUIPMENT TO PREPARE HEALTHY MEALS

INTRODUCTION

Equipment used for production of meals is a critical element in effective implementation of the United States Department of Agriculture's (USDA) "School Meal Initiatives for Healthy Children". The increased emphasis on the nutritional quality of meals served will challenge Child Nutrition Program (CNP) directors to plan and prepare healthy meals that are acceptable to children (Gregoire, Sneed, and Martin, 1993). Attention also is being given to the quality of the food being served to make it more appealing to children (Bennett, 1994).

Changes in technology, menu offerings, and production techniques are impacting foodservice equipment needs in schools. Increased numbers of menu items are being cooked in smaller batches closer to serving time. Smaller sizes of kettles and convection steamers are replacing ranges to cook food as it is needed on the serving line (Designing school kitchens from scratch, 1989).

What preparation equipment is needed in schools to produce menus acceptable to children and also comply with USDA regulations? To answer this question, the National Food Service Management Institute (NFSMI) conducted a two phase project to develop guidelines for the preparation equipment needed in schools.

One assumption made in this project was that the menu in a school is the nucleus around which all foodservice equipment purchases are planned. Pat Bulger, coordinator of Child Nutrition Programs in Shelby County, AL, stated "the menu has to drive the equipment; the equipment can't drive the menu. Any piece of equipment you buy has to be viewed from the standpoint of how it will enhance the food the children will eat" (Sachman, 1994). Therefore, in the first phase of the equipment guidelines project, breakfast and lunch menus were developed that comply with USDA regulations, implement the nutrition principles of the Dietary Guidelines for Americans (DGA), and are representative of menus served in schools.

Guidelines for the preparation equipment needed to produce the menus and questions to consider when purchasing these equipment items were developed in the second phase of the project. The preparation equipment guidelines were developed for the typical CNP with conventional food production systems. NFSMI researchers included equipment deemed necessary for school kitchens to prepare breakfast and lunch meals; however, they also were cognizant of financial concerns of school districts.

A variety of foodservice equipment is needed to prepare breakfast and lunch meals in school kitchens. Types of equipment typically found in foodservice operations include: chilled/frozen storage, pre-preparation, production, service, and warewashing. This project focused on the preparation equipment in school kitchens. For the purposes of this project, preparation equipment was defined as items used to prepare food items for cooking (mixer, slicer, and food processor), cook food products (convection oven, braising pan, kettle, steamer, and range), and hold food for service (heated cabinets and refrigerators).

Today's CNPs are operating in an environment of change. To assure CNPs meet present and future needs, foodservice directors must be open to the demands of their consumers and program regulations. CNP operators can enhance their programs' production capabilities by incorporating new technologies through equipment purchases. New or improved food service equipment will enable schools to achieve unprecedented performance goals (Sneed, 1992). CNPs that offer a variety of menu items are demanding equipment that provides flexibility and high-speed production. Much of the equipment available in today's school market has been utilized by other segments of the foodservice industry. Combination convection oven/steamers, conveyor ovens, and two-sided griddles are examples of new equipment being introduced for use in schools (Spertzel, 1991a; Spertzel, 1991b; Mackesey, 1993). While CNPs glean information from other segments of the foodservice industry to broaden production knowledge, equipment manufacturers are developing new and improved production equipment.

The NFSMI plans to use these guidelines to compare with the actual equipment found in schools to determine whether school kitchens appear to be adequately equipped to offer menus consistent with the DGAs. This document also will be useful to school foodservice directors as a reference guide for the type and capacity of preparation equipment recommended for school kitchens. Foodservice facilities consultants and kitchen planners also will find this document helpful in designing kitchen facilities for schools.

PHASE I

CYCLE MENUS

CYCLE MENUS

Development of cycle menus was the first phase of the NFSMI project on preparation equipment needed to implement the DGAs. During the time frame of this project, federal regulations were amended to allow meal planning based on analysis of key nutrients (nutrient standard menu planning) as well as a food-based meal pattern. The menus were planned to fulfill USDA requirements for both nutrient standard menu planning and the food-based meal pattern. The menus developed in phase one of this equipment guidelines project served as the foundation for planning the preparation equipment needed in schools to prepare healthy meals.

METHOD

Menu Development

Two sets of two week menus were developed for breakfast and lunch. One set of menus, entitled limited choice, included two selections of entrees and limited choices of fruits and vegetables. The other set of menus, entitled full choice, included four entree selections and expanded fruit and vegetable choices. The parameters established for the development of the menus were as follows:

- The menus were to be generic in scope and representative of menus that could be served in elementary and secondary schools throughout the United States;
- Demonstrated menu planning principles such as variety of color, texture, and taste were to be incorporated.
- The nutrition recommendations of the DGA were to be implemented.
- The menus were to be planned to meet USDA requirements for both nutrient standard menu planning and the food-based meal pattern.

Several sources were used in developing the menus. *Quantity Recipes for School Food Service* (1988) and *Food for Fifty* (1993) were utilized. In addition, recipes from *School Foodservice and Nutrition* and *Cooking Light* magazines were incorporated as limited sources of low-fat recipes existed at the time of this project.

Menus were planned for 100 servings and portion sizes were indicated for two age groups: kindergarten through sixth grade, and seventh through twelfth grade. The menu item choices within each component category were weighted to total 100 portions. A former CNP director with many years of experience confirmed the weighting of individual menu items.

Nutrient Analysis

Nutrient analysis was performed using USDA-approved software. Calories, protein, calcium, iron, vitamin A, vitamin C, total fat, and saturated fat were calculated for each day of the menu cycles. Weekly summary totals for the key nutrients also were provided. The two age categories for which these analyses were performed were five through 11 years, and 12 through 17 years of age.

Expert Panel

The menus and accompanying nutrient analyses were mailed to a panel of five school foodservice directors and nutrition specialists. There was representation on the panel from different areas of the country and sizes of school districts. These individuals were selected based on their recognized expertise in operating a sound CNP and planning creative and nutritious menus. The panel members were asked to review the menus to determine if they met USDA regulations, were consistent with the nutrition principles of the DGA, and were representative of menus served in schools.

RESULTS

The panel of CNP experts made several changes to the cycle menus and came to consensus on the final product. The panel indicated that the menus contained many creative ideas for implementing the DGAs and could be adapted to individual operations with minor changes to meet customers' food preferences. The panel also suggested that the full choice menus were similar to menus served in secondary schools and the limited choice were similar to elementary school menus.

The expert panel expressed concern about some of the descriptive menu terminology. Their concern was whether the menu description was instructions for production or merely a term describing a prepared product. Descriptions were changed or additional comments were added to clarify when prepared products were used.

Another concern was that the menus contained too much variety of cold cereals and fruit/juices at breakfast. The panel recommended limiting the variety of cold cereals and fruits/juices at breakfast. They also suggested that bread products be described in ounces (ie, 1-2 ounce roll) rather than in number (ie, 1 roll). The expert panel expressed concern about desserts on the menus. It was determined that low-fat or fat-free desserts should be used to meet calorie needs and for satiety of customers.

The expert panel reached consensus on the menus with the changes discussed. The menus were revised based on the comments of the panel (Figure 1) and additional nutrient analysis was performed (Appendix C).

SUMMARY

Two sets of cycle menus for breakfast and lunch were developed during phase one of the equipment guidelines project. A panel of CNP experts reviewed the menus to determine if they met USDA regulations, were consistent with the nutrition principles of the DGAs, and were representative of menus served in schools. Menus were revised based on recommendations of the expert panel. These menus will be used by NFSMI as the basis to develop preparation equipment guidelines in phase two of the project.

FIGURE 1. BREAKFAST AND LUNCH CYCLE MENUS

Breakfast Menu Offerings - Limited Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Fruits/Vegetables Customer Select ONE Fruit or Fruit Juice	Applesauce Orange Juice	Peach Slices Apple Juice	Banana Grape Juice	Mixed Fruit Orange Juice	Orange Wedge Apple Juice
CUSTOMER SELECT EITHER TWO GRAINS/BREADS OR ONE GRAIN/BREAD AND ONE MEAT/MEAT ALTERNATE OR TWO SERVINGS MEAT/MEAT ALTERNATE					
Grains/Breads					
Cold Cereal	Honey Nut Cheerios	Frosted Flakes	Corn Pops	Honey Nut Cheerios	Rice Krispies
Cold Cereal	Rice Krispies	Rice Krispies	Rice Krispies	Rice Krispies	Frosted Corn Flakes
Hot Bread	French Toast	English Muffin	Pancake	Biscuit or Multi Grain Roll	Waffles
Meat/Meat Alternate	Sausage Patty	Cheesy Scrambled Egg	Ham	Chicken Breast Tender - Breaded	Sausage Link
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Assorted Jellies Butter/Margarine Maple Syrup Sugar	Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Maple Syrup Butter/Margarine Sugar	Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Maple Syrup Butter/Margarine Sugar

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Breakfast Menu Offerings - Limited Choice

CYCLE 2	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Fruits/Vegetables Customer Select ONE Fruit or Fruit Juice	Orange Wedges Grape Juice	Banana Orange Juice	Sliced Peaches Apple Juice	Applesauce Grape Juice	Mixed Fruit Orange Juice
CUSTOMER SELECT EITHER TWO GRAINS/BREADS OR ONE GRAIN/BREAD AND ONE MEAT/MEAT ALTERNATE OR TWO SERVINGS MEAT/MEAT ALTERNATE					
Grains/Breads Cold Cereal	Corn Pops	Rice Krispies	Frosted Flakes	Corn Pops	Honey Nut Cheerios
Cold Cereal	Rice Krispies	Honey Nut Cheerios	Rice Krispies	Rice Krispies	Rice Krispies
Hot Bread	Spiced Bran Muffin	French Toast	Biscuit	Whole Wheat English Muffin	Pancake
Meat/Meat Alternate	Cheese on Whole Wheat Sandwich	Sausage Links	Sausage Patty	Cheesy Scrambled Egg	Breakfast Pizza
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Assorted Jellies Butter/Margarine Sugar	Maple Syrup Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Maple Syrup Butter/Margarine Sugar

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Breakfast Menu Offerings - Full Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Fruit/Vegetable Customer Select ONE					
Fruit or	Banana	Peach Slices	Fresh Grapes	Mixed Fruit	Orange Wedges
Fruit Juice	Grape Juice	Apple Juice	Orange Juice	Grape Juice	Apple Juice
CUSTOMER SELECT EITHER 2 CHOICES FROM BREADS AND GRAINS OR 1 CHOICE FROM BREADS AND GRAINS AND 1 CHOICE FROM MEAT/MEAT ALTERNATE OR 2 CHOICES MEAT/MEAT ALTERNATE					
Breads/Grains					
Cold Cereal	Rice Krispies	Rice Krispies	Rice Krispies	Corn Pops	Frosted Flakes
Cold Cereal	Honey Nut Cheerios	Frosted Flakes	Honey Nut Cheerios	Rice Krispies	Rice Krispies
Other	French Toast	Bran Muffin	English Muffin	Bagel of Choice	Soft Pretzel
Meat/Meat Alternate					
Meat	Turkey Ham Slice	Cheese on Whole Wheat Sandwich	Breakfast Pizza	Sausage Patty	String Cheese
Meat/Alternate	Sausage Patty	Sausage Links	Scrambled Egg	Breakfast Sandwich	Breakfast Burrito
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Butter/Margarine Maple Syrup Assorted Jellies Sugar	Butter/Margarine Assorted Jellies Sugar	Assorted Jellies Butter/Margarine Sugar	Cream Cheese Assorted Jellies Butter/Margarine Sugar	Assorted Jellies Butter/Margarine Sugar

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUs

Breakfast Menu Offerings - Full Choice

CYCLE 2	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Fruit/Vegetable Customer Select ONE Fruit or Fruit Juice	Applesauce Orange Juice	Banana Grape Juice	Mixed Fruit Apple Juice	Banana Orange Juice	Fresh Strawberries Grape Juice
CUSTOMER SELECT EITHER 2 CHOICES FROM BREADS AND GRAINS OR 1 CHOICE FROM BREADS AND GRAINS AND 1 CHOICE FROM MEAT/MEAT ALTERNATE OR 2 CHOICES MEAT/MEAT ALTERNATE					
Breads/Grains					
Cold Cereal	Rice Krispies	Honey Nut Cheerios	Corn Pops	Honey Nut Cheerios	Frosted Flakes
Cold Cereal	Frosted Flakes	Rice Krispies	Frosted Rice Krispies	Rice Krispies	Rice Krispies
Other	Waffle	Whole Wheat Bagel	Blueberry Muffin	Toasted English Muffin	Whole Wheat Toast
Meat/Meat Alternate					
Meat	Breakfast Pizza	Breakfast Ham	Cheese on Whole Wheat Sandwich	Breakfast Burrito	Scrambled Eggs with Cheese
Meat/Alternate	Sausage Patty	crambled Eggs	Sausage Links	String Cheese	Ham Slice
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Assorted Jellies Butter/Margarine Sugar	Butter/Margarine Assorted Jellies Cream Cheese Sugar	Assorted Jellies Butter/Margarine Sugar	Salsa Butter/Margarine Assorted Jellies Sugar	Assorted Jellies Butter/Margarine Sugar

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Lunch Menu Offerings - Limited Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Meat/Meat Alternate CUSTOMER SELECT ONE	Spaghetti with Meat Sauce Toasted Turkey Swiss Sandwich	Chicken Vegetable Stirfry with Rice Hamburger and fixings	Mexican Burrito Ham and Cheese in a Pita	Cheese Pizza Grilled Chicken Sandwich with Lettuce and Tomato	Pasta, Beef and Tomato Casserole Fish Sandwich
Bread/Grain CUSTOMER SELECT ONE	French Bread Crackers	Hot Roll Whole Wheat Crackers	Mexican Rice Pretzels	Breadsticks Pasta w/ herb seasoning	Hot Roll Bran Muffin
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable Vegetable Fruit	Mixed Vegetables Tossed Green Salad Fruited Gelatin	Potato Wedges Garden Salad Applesauce	Mixed Corn Fiesta Fresh Cauliflower and Broccoli Chilled Pear	Crisp Cut Potatoes Broccoli Slaw Orange Wedges	Green Peas Tossed Salad Sliced Peaches
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Butter/Margarine Salad Dressing	Butter/Margarine Salad Dressing Ketchup Mustard	Salsa Ranch Dip	Ketchup Mustard Mayonnaise BBQ Sauce Pizza Sauce	Salad Dressing Butter/Margarine Ketchup Mayonnaise Tartar Sauce
Dessert	Apple Crisp	Chocolate Pudding	Oatmeal Cookie	Applesauce Cup Cake	Rainbow Sherbert

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Lunch Menu Offerings - Limited Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Meat/Meat Alternate CUSTOMER SELECT ONE	Mexican Chicken Bake Hamburger with Lettuce and Tomato	Grilled Chicken Salad Hearty Vegetable Soup with Grilled Cheese Sandwich	Chicken Nuggets Tacos with Fixings	Cheesy Macaroni Hot Roast Beef Sandwich	Veggie Pizza Ham on Kaiser Roll with lettuce, dill, tomato
Food Bar:					
Breads/Grains CUSTOMER SELECT ONE	Hot Roll Blueberry Muffin	Whole Wheat Crackers Hot Roll	Hot Roll Whole Wheat Crackers	Hot Roll Pretzels	Roini Pasta Salad Dinner Roll - Whole Wheat
Fruits and Vegetables CUSTOMER SELECT TWO Vegetable Vegetable Vegetable Fruit Fruit	Oven Fried Potatoes Broccoli Spears Pears	Whole Kernel Corn Tiny Peas Fresh Fruit of Choice	Tater Tots Fresh Spinach Salad Rosey Applesauce	Mashed Potatoes Mixed Vegetables Fresh Fruit Cup	Seasoned Green Beans Carrot Sticks Mixed Fruit Cup
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Ketchup Mustard Butter/Margarine	Salad Dressing Butter/Margarine	BBQ Sauce Sweet and Sour Sauce Salsa Salad Dressing	Butter/Margarine	Butter/Margarine Ranch Dip Mayonnaise Mustard
Dessert	Peanut Butter Cookie	Chocolate Chip Cookie	Vanilla Pudding	Strawberry Angel Treat	Cherry Cobbler

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Lunch Menu Offerings - Full Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Meat/Meat Alternate CUSTOMER SELECT ONE	Chicken Lo Mein Gyro Turkey Hoagy Sandwich with Lettuce and Tomato	Individual Meat Loaf Shaved Ham Pita Pocket Chicken Noodle Soup and Grilled Cheese Sandwich	Beef Stew with Veggies Baked Chicken Breast Chef Salad	White Chili Hamburger and fixings Veggie Pizza	Baked Ziti Grilled Chicken Sandwich Lentil Soup and Tuna Salad Sandwich
Food Bar:	Seasoned Beef Cheese, Lettuce, Tomatoes Shells, Salsa		Italian Meat Sauce Chunky Vegetable Sauce Spaghetti, Corkscrew and Bowtie Pasta Breadsticks		Baked Potato Turkey Topping Cheese, Sour Cream Cottage Cheese, Salsa
Breads/Grains CUSTOMER SELECT ONE	Rotini Pasta Salad Hot Roll Sesame Bagel	Hot Roll Whole Wheat Crackers Bran Muffin	Hot Roll Crackers Breadsticks	Hot Roll Brown Rice Crackers	Brown Rice Whole Wheat Crackers French Bread
Fruits and Vegetables CUSTOMER SELECT TWO Vegetable Vegetable Vegetable Fruit Fruit	Green Beans Whole Kernel Corn Garden Fresh Salad Fresh Fruit of Choice Mixed Fruit Cup	Creamy Mashed Potatoes Green Peas Mixed Green Salad Fresh Fruit of Choice Rosey Applesauce	Oven Roasted Potatoes Steamed Broccoli Vegetable Sticks Blushing Pears Fresh Fruit of Choice	Red Potatoe Quarters Cole Slaw Tossed Garden Salad Fruited Gelatin Fresh Fruit of Choice	Oven Roasted Potatoes Mixed Vegetables Tossed Garden Salad Fresh Fruit of Choice Chilled Peach Slices
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Butter/Margarine Salad Dressing	Ketchup Salad Dressing Butter/Margarine	Ranch Dip Butter/Margarine Pizza Sauce	Ketchup Mustard Salad Dressing Butter/Margarine	Salad Dressing Butter/Margarine
Dessert	Rice Krispie Treat Sponge Cake Gelatin	Vanilla Ice Milk Ginger Snaps Gelatin	Cherry Cherry Cake Fig Bars Gelatin	Orange Sherbert Vanilla Wafers Gelatin	Chocolate Cake Lemon Pudding Gelatin

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FIGURE 1 CON'T. BREAKFAST AND LUNCH CYCLE MENUS

Lunch Menu Offerings - Full Choice

CYCLE 1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Meat/Meat Alternate CUSTOMER SELECT ONE	Chicken Nuggets Cheeseburger and fixings Hearty Vegetable Soup and Peanut Butter and Jelly Sandwich	BBQ Beef Sandwich Vegetarian Spaghetti Pie Grilled Ham and Cheese Hoagie	Pizza Grilled Chicken Salad Meatball Sub with Sauce	Roasted Turkey Roast Beef Sub Sandwich Burrito	Soft Taco Oven-Fried Catfish Fillets Chicken Garden Pasta Salad
Food Bar:	Chopped Lettuce, Chopped Ham, Turkey, Eggs Tomatoes, Carrots, Celery Breadsticks, Crackers		Beef Stir Fry Sweet and Sour Chicken Stir Fried Broccoli, Rice		Turkey, Ham, Roast Beef American, Swiss Cheese Lettuce, Tomatoes, Assorted BreadsChopped Lettuce
Breads/Grains CUSTOMER SELECT ONE	Rice Whole Wheat Crackers Hot Roll	French Bread Whole Wheat Crackers Bran Muffin	Hot Roll Crisp Crackers Bread Sticks	Hot Roll Rice Blueberry Muffin	Chili Double Corn Muffin Brown Rice Hot Roll
Fruits and Vegetables CUSTOMER SELECT TWO Vegetable Vegetable Vegetable Fruit Fruit	Potato Wedges Broccoli/Cauliflower Florets Mixed Garden Salad Chilled Applesauce Fresh Fruit of Choice	Baked Beans Corn on the Cob Tossed Salad Fresh Fruit of Choice Chilled Pineapple Tidbits	Criss Cut Potatoes Green Beans Fresh Garden Salad Chilled Peach Slices Fresh Fruit of Choice	Mashed Sweet Potatoes California Mix Celery Sticks/Carrot Sticks Fresh Fruit of Choice Cranberry Mold	Baked Potato French Style Green Beans Tossed Garden Salad Mixed Fruit Fresh Fruit of Choice
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate	Whole Skim Lowfat Lowfat Chocolate
Condiments	Ketchup Mustard BBQ Sauce Salad Dressing Mayonnaise Butter/Margarine	Ketchup Mustard BBQ Sauce Salad Dressing Butter/Margarine	Salad Dressing Butter/Margarine Pizza Sauce	Salsa Ranch Dip Butter/Margarine	Salad Dressings Butter/Margarine Ketchup
Dessert	Vanilla Frozen Yogurt Strawberry Shortcake Gelatin Cubes	Peanut Butter Sprinkle Cookies Yellow Cake Gelatin	Oatmeal Cookie Lemon Pudding Gelatin	Chocolate Chip Cookie Gingerbread Gelatin	Apple Crisp Angel Food Cake Gelatin

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PHASE II

PREPARATION EQUIPMENT GUIDELINES

PREPARATION EQUIPMENT GUIDELINES

In previous NFSMI studies, school foodservice directors have indicated that over 65 percent of all schools are considered to use conventional food production (Maize and Conklin, 1995; Nettles, 1996). In other words, all food products are prepared and served at the same school site. Many types of foodservice equipment are needed in kitchens to prepare school meals. Development of guidelines focused on preparation equipment needed to produce meals in schools with conventional food production systems. For the purposes of this project, preparation equipment was defined as those equipment items used to prepare food items for cooking (mixer, slicer, and food processor), cook food products (convection oven, braising pan, kettle, steamer, and range), and hold food for service (heated cabinets and refrigerators).

METHOD

Size of School Kitchens

Three sizes of schools were determined based on an in-progress NFSMI research project which asked the number of meals prepared in conventional kitchens. The three categories were school kitchens that prepared 400 meals or less, 401-700 meals, and 701-1000 meals.

Development of Guidelines

The cycle menus developed in the first phase of the project were the basis for the development of preparation equipment guidelines. A systematic process was used to determine the type and capacity of preparation equipment needed in the three sizes of school kitchens. The process is outlined as follows:

- Number of portions per menu item were calculated for each school size
- Preparation equipment was identified to prepare each menu item.
- The number of pans or quantity of product needed to prepare each menu item was determined.
- The capacity of recommended preparation equipment was evaluated for each school size.
- The number and type of preparation equipment was recommended for each size of school kitchen.
- Preparation equipment was verified by calculating necessary capacity if very limited emergency menus were prepared.

Expert Panel

The proposed preparation equipment guidelines and the accompanying cycle menus were mailed to a nine member panel of experts. A one week example of the menus mailed to the expert panel is included in Appendix D. The panel consisted of six school foodservice directors, a foodservice consultant specializing in facility design, a manufacturers' representative for foodservice equipment, and a university professor whose expertise is quantity food production. There was representation from all areas of the country and sizes of school districts. A complete list of the expert panel members is in Appendix B. The panel members were asked to review the preparation equipment guidelines and the menus in order to verify whether the menus could be produced using the equipment listed for the three sizes of kitchens.

RESULTS

Preparation Equipment Guidelines

The expert panel members were instructed to review the equipment guidelines to determine if the menus could be prepared utilizing the equipment listed. They also were asked to carefully evaluate the number and capacity of equipment items since over-equipping kitchens is a concern as well as having enough foodservice equipment available. The panel made several changes to the preparation equipment guidelines and came to consensus on the final product. Convection oven capacity was increased for the 401-700 and the 701-1000 meal schools. A two burner range and food processor were added for all sizes of school kitchens. The original guidelines listed convection steamers for all sizes of school kitchens: Panel members preferred the term steamers because it was more generic and would include convection, low, and high pressure units. The number and capacity of braising pans were increased to one 40 gallon pan and one 23 or 30 gallon pan for the 401-700 schools and two 40 gallon pans for the 701-1000 schools. The expert panel reached consensus on the preparation equipment guidelines with the changes discussed. The guidelines were revised based on the comments of the panel (Figure 2).

Equipment Descriptions

Detailed descriptions were prepared for the equipment items included in the guidelines (Figure 3). Several sources were used in developing the equipment descriptions. Textbooks (Avery, 1985; Kazarian, 1989; Kotschevar & Terrell, 1985; Payne-Palacio, Harger, Shugart, & Theis, 1994; and Scriven & Stevens, 1982), USDA and State Department of Education publications (Auburn University Department of Architecture, 1994; *Equipment guide for on-site school kitchens*, 1977; Pannell, 1992; and Puma, 1983), and equipment manufacturer catalogs were utilized in addition to the researchers' prior experiences. Additional questions to consider when purchasing each equipment item were developed. Forms adapted from the equipment descriptions were developed that can be used by foodservice directors when making purchase decisions for these equipment items (Appendix E).

Other Foodservice Equipment

Preparation equipment was the focus of this study; however, this listing does not include all equipment necessary to operate a school kitchen. A list of suggested foodservice equipment for school kitchens was compiled (Appendix F). Quantities of suggested equipment were not delineated.

SUMMARY

Preparation equipment guidelines for three sizes of schools were developed. A panel of CNP and foodservice equipment experts reviewed the guidelines to verify whether the menus could be prepared using the equipment listed for the three sizes of kitchens. Preparation equipment guidelines were revised based on recommendations of the expert panel. These guidelines will be used by NFSMI in future research to determine whether school kitchens appear to be adequately equipped to offer menus consistent with the DGAs.

Figure 2. Preparation Equipment Guidelines for Conventional Kitchens

Preparation Equipment	Meals Prepared Per Day		
	< 400	401-700	701-1000
Convection Ovens	(1) stacked	(2) stacked	(3) stacked
Tilting Braising Pans	(1) 23 or 30 gal	(1) 23 or 30 gal and (1) 40 gal	(2) 40 gal
Kettles	(1) 10 gal	(1) 10 gal	(1) 10 gal and (1) 20 gal
Steamers	(1) 2 compartment	(1) 2 compartment	(2) 2 compartment
Ranges	(1) 2-burner	(1) 2-burner	(1) 2-burner
Mixers	(1) 60 qt. with 30 qt. attachments	(1) 60 qt. with 30 qt. attachments	(1) 30 qt. and (1) 60 qt.
Slicers	(1) automatic	(1) automatic	(2) automatic
Food Processors	(1) table top	(1) table top	(1) table top
Heated Cabinets: Pass-thru or Reach-in	1 section	2 section	3 section
Refrigerators: Pass-thru or Reach-in	1 section	2 section	2 section

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Figure 3. Preparation Equipment Descriptions and Questions to Consider

CONVECTION OVENS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) double full size convection oven
401 - 700	(2) double full size convection ovens
701 - 1000	(3) double full size convection ovens

Description

Convection ovens differ from other ovens in that fans are used to provide rapid circulation of heated air within the cooking chamber. Since heat transfer into food products is increased by the force of the heated air, a lower temperature and shorter cooking time may be used.

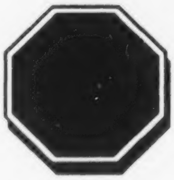
Convection ovens are available in both gas and electric. These ovens can be purchased in half or full size units. Half size ovens hold 13"x18" baking pans while 18"x26" pans can be used in the full size oven. Steamtable pans can be used in both but pan capacity will be greater in the full size unit. Both the half and full size ovens are available as single or double units. The single unit is one oven on approximately 25" legs while the double unit is two ovens on approximately 6" legs. The advantage to the double unit is that there is twice the capacity in the same amount of floor space. A possible disadvantage is that the higher racks in the top oven and the lower racks in the bottom oven may not be utilized to full potential due to lack of accessibility by staff.

The oven exterior can be high-heat aluminum, 16 to 20 gauge stainless steel, 14 to 20 gauge steel with porcelain or vitreous enamel finishes, or other baked on finishes. The majority of oven interiors are comprised of porcelain-enameled or stainless steel finishes.

Sizes of ovens vary with manufacturers, but a typical full size convection oven measures approximately 36" wide by 37" deep. Nine to eleven rack guides are provided; however, five racks are the standard amount provided with each oven. Additional racks may be purchased. Manufacturers are building a new generation of convection ovens that have increased cooking capacity of up to 17 racks. Roll-in convection ovens also are available for high production operations.

One innovative type of oven is the combination convection oven/steamer. The greatest benefit of combination convection oven/steamer is that two separate conventional cooking techniques are combined into a single piece of equipment. These units have three cooking modes: steam, hot air, and combination. The combination mode blends the advantages of steam cookery with those of convection oven/steamer can be used to steam, blanch, poach, bake, roast, and rethermalize food products that are moist and nutritious.

Questions to Consider



- How many meals are to be prepared?
- Do I need a single or double oven?
- What types of food products will be prepared in this oven?
- Does this oven have the necessary capacity to allow for increased production due to participation growth?
- Does this oven provide production flexibility?
- How often and for how many items will this oven be used?

- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- Do I need a gas or an electric oven?
- How many KWs or BTUs does this oven use? Is it energy efficient?
- If I purchase a gas oven, are there any electrical connections required?
- What are the dimensions of this oven? Will it fit in the space available in this kitchen?
- What is the life expectancy for this oven?
- Is the oven NSF listed and AGA design certified or UL listed?
- What are the ventilation requirements for the oven?
- What optional features do I need?
- Do I want to purchase additional oven racks?
- Are legs included with this oven?
- What control panel options do I need?
- What is the temperature range of this oven?

- Is the oven easy to operate?
- Is the oven easy to clean?
- What preventive maintenance procedures are recommended?
- What do I need to know about this oven's heat transfer mechanism?
- How long does it take the oven to pre-heat?
- What are the differences in door construction?
- Who is the factory authorized service agent for this oven?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this oven?

- What exterior finishes are available for the sides, legs, and back panel? What is the cost differential?
- Do I need a glass insert in the door or can it be solid?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

Other Ovens Available

Type of Oven	Suggested Uses
Deck	Baking, roasting, pizza products
Rotary	Large volume baking and roasting
Conveyor Ovens	Pizza products, bakery products such as cookies and muffins, and hamburgers
Microwave Ovens	Quick cooking of food products
Roast-and-Hold Ovens	Roasting meat products
Combination Convection Oven/Steamer	Baking, roasting, oven braising, steaming, poaching, reconstituting

TILTING BRAISING PANS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) 23 or 30 gallon tilting braising pan
401 - 700	(1) 23 or 30 gallon and (1) 40 gallon tilting braising pans
701 - 1000	(2) 40 gallon tilting braising pans

Description

The tilting braising pan also is called a tilting fry pan or tilting skillet. The braising pan is considered by many foodservice professionals to be the most versatile piece of equipment in the kitchen. In addition to use as a braiser, it also can function as a griddle, kettle, frypan, and steamer. The use of a braising pan eliminates most range-top cooking and provides for one-step preparation of many menu items.

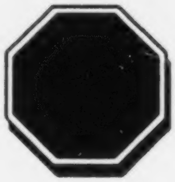
Tilting braising pans are available in both countertop and floor models. The countertop units usually are electric and are available in 10, 12, and 15 gallon capacities. Floor models are available in both gas and electric from 23 to 40 gallon capacities. Dimensions of the braising pan vary with the capacity desired and the design of the pan.

Heating elements typically are clamped to the bottom of electric braising pans while gas models have burners placed across the bottom of the pan. When evaluating a gas tilting braising pan, tilt the pan forward to observe the pattern of the gas burners. They should be evenly and frequently spaced to avoid any hot spots. Both gas and electric braising pans have thermostats to control the temperature. The range of temperatures provided varies with the manufacturer.

As the name suggests, the braising pan tilts so that liquids can be poured into a container. The tilting feature also facilitates cleanup. When designing new facilities, consider positioning a floor drain in line with the pouring path of the braising pan. A convenient accessory is a filler faucet or a spray rinse hose to expedite filling the pan with water for cooking and/or cleaning.

Questions to Consider

- How many meals are to be prepared?
- What capacity of braising pan do I need?
- What types of food products will be prepared in this braising pan?
- Does this braising pan have the necessary capacity to allow for increased production due to participation growth?
- Does this braising pan provide production flexibility?
- How often and for how many food items will this braising pan be used?



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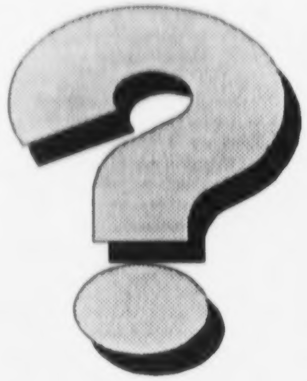
- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- Do I need a gas or electric braising pan?
- How many KWs or BTUs does this braising pan use? Is it energy efficient?
- If I purchase a gas braising pan, are there any electrical requirements for controls?
- What are the dimensions of this braising pan? Will it fit in the space available in this kitchen?
- What is the life expectancy of this braising pan?
- Is the braising pan NSF listed and AGA design certified or UL listed?
- What are the ventilation requirements for this braising pan?
- What are the optional features and which ones do I need?
- What is the temperature range for this braising pan?
- What is the recommended pre-heat time for this braising pan?
- What will cause the pan bottom to dent or warp?
- Will the braising pan be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the braising pan?
- Do I need a spray rinse hose or filler faucet as an accessory?
- How is the cover constructed? Is it counterbalanced so that it will not slam?
- Where is the lifting handle located? Is it located where the employee can lift the cover without being in the path of steam?
- Are a cover vent and condensate drip shield provided in the pan cover?



- Is the braising pan easy to operate?
- Is the braising pan easy to clean?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this braising pan?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this braising pan?
- How is the pan bottom constructed?
- What do I need to know about the braising pan's heat transfer mechanism?
- Do I need a braising pan with a manual or electric tilting mechanism?
- If I select a braising pan with an electric tilting mechanism, is there a manual override in case of power failure?
- Does the manual tilting mechanism have a self-locking worm and gear assembly?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost of the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

KETTLES

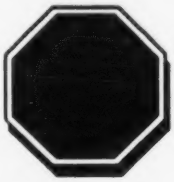
MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) 10 gallon kettle
401 - 700	(1) 10 gallon kettle
701 - 1000	(1) 10 gallon and (1) 20 gallon kettles

Description
The kettle is a commonly used steam cooking appliance in conventional foodservice operations. The moist-heat cooking principle of the kettle is similar to a double boiler in that it utilizes two hemispherical metal shells. The smaller shell is inserted into the larger shell leaving space around the bottom and sides. Between the two metal shells is an open space, or jacket into which steam is introduced. Kettles are manufactured with one-half, two-thirds, or full jacketing. When the kettle is in operation, heat from the steam is transferred directly into the food product through the wall of the kettle.

The American Society of Mechanical Engineers (ASME) has established safety codes that must be followed by all manufacturers of steam jacketed kettles. These codes dictate that the inner jacket of kettles must be able to handle steam pressure from five to 50 pounds per square inch (psi) and the kettles should be constructed of heavy gauge stainless steel.

Examination of the menu, number of portions needed, portion sizes, and food production procedures will influence the number and type of kettles required. Steam jacketed kettles are available in a variety of kettle types, sizes, and capacities. Kettles are either self-contained or direct steam models; the majority of school kitchens utilize self-contained kettles. Self-contained kettles are available in both gas and electric and operate without water or drain plumbing connections. These kettles are shipped from the manufacturer filled with distilled water and will be able to generate their own steam. Direct steam kettles operate with steam provided by a remote source, which can be a boiler designated to provide steam for the kitchen, a boiler located near the kettles, or one that also power steamer compartments. The size of kettles range from ten to 150 gallons for stationary types and from one quart to 80 gallons for tilting models. Kettles ranging from five to 20 gallons are ideal for small batch preparation of menu items. The use of two small kettles allows for versatility in food production. When preparing food products, kettles should be no more than two-thirds to three-fourths full to allow room for foaming of product or boilover.

Questions to Consider



- How many meals are to be prepared?
- Do I want a stationary or tilting kettle? What is the price differential?
- What capacity of kettle do I need?
- What types of food products will be prepared in this kettle?

- Does this kettle have the necessary capacity to allow for increased production due to participation growth?
- Does the kettle allow for production flexibility?
- How often and for how many food items will this kettle be used?
- What is a tangent draw-off? Is it standard on this kettle? Do I need it on this kettle?
- Is a kettle cover included as standard equipment?
- What types of kettle covers are available?
- How are table top kettles mounted?
- Is there a floor drain adjacent to the installation site for this kettle?

- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- Do I need a self-contained or direct steam model?
- Do I need a gas or electric self-contained kettle?
- If I purchase a gas kettle, are there any electrical requirements for the controls?
- How many KWs or BTUs does this kettle use? Is it energy efficient?
- What are the dimensions of this kettle? Will it fit in the space available in this kitchen?
- What is the life expectancy of this kettle?
- Is the kettle NSF listed and AGA design certified or UL listed?
- Is this kettle ASME shop inspected? What is the maximum working pressure that this kettle is registered for?
- What are the ventilation requirements for this kettle?
- What optional features do I need?
- Will the kettle be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the kettle?
- Do I need a spray rinse hose or filler faucet as an accessory for this kettle?
- What benefit would it be to have etched numbers on the inside of the kettle indicating the volume of liquid? How much does this cost?

- Does the kettle have a safety valve to release the jacket steam pressure? Is this automatic or does an employee manually release it? At what psi level, does this happen? How often does it occur?
- Is there a pressure gauge on the kettle?
- Does the kettle have a temperature control?
- Is the kettle easy to operate?
- Is the kettle easy to clean?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this kettle?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this kettle?
- For what applications would I need a 316 stainless steel interior for this kettle?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?
- What do I need to know about operating and understanding the controls on this kettle?
- What safety features are designed into this kettle?

STEAMERS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) 2 compartment steamer
401 - 700	(1) 2 compartment steamer
701 - 1000	(2) 2 compartment steamers

Description

Steamers cook food in a relatively short amount of time. In addition, cooking with steam enables food to retain more of its nutritional value, color, and texture. Preparing batches of steamed food products close to serving time reduces or eliminates time spent in food warmers. As a result, freshness is maintained. The type of steamer needed for a facility depends on the quantity of food to be prepared, speed of preparation needed, and probable source of steam.

There are several types of steamers: pressureless or convection, low pressure, high pressure, and pressure/pressureless. How a steamer is categorized is a function of the pounds of pressure per square inch (psi) in the cooking chamber. The steamer's cooking temperature is directly affected by its cooking cavity operating pressure. Pressureless steamers operate at zero psi, which corresponds to a cooking temperature of 212°F. Low pressure steamers have a psi range from five to ten and cook at temperatures from 228°F to 240°F. High pressure steamers cook at 15 psi and a temperature of 250°F. All steamers can use direct steam or a steam boiler. The gas- or electric-powered steam boiler is usually self-contained and located in the cabinet below the steamer. The self-contained steamer requires a water source to fill the boiler in order to produce steam.

In pressureless or convection steamers, the heat transfer is accomplished by forced convection. The circulating steam strips away an insulating layer of cold air that forms a barrier around foods. Pressureless steamers are well suited for a wide variety of food types, from fresh vegetables to loose pack frozen or frozen block vegetables. Because the steam is continuously vented, unwanted flavor transfer from one food to another is eliminated. The advantage of the pressureless steamer is the ability to open the door during the cooking process, which cannot be done with either the low pressure or high pressure steamers.

In both low and high pressure steamers, cold air is removed from the cooking chamber as steam is introduced. As the temperature increases a steam trap slowly closes, allowing the pressure to increase. Once the chamber is brought to the correct pressure, steam is introduced to maintain this pressure. This results in faster cooking times for many food products. However, these steamers are not recommended for use with frozen block food products such as spinach. Flavor transfer may occur between dissimilar products and overcooking is possible with pressure steamers.

Pressure/pressureless steamers are offered by several manufacturers. In these models, either one or two of the compartments are convertible from low pressure to pressureless operation. These units combine the advantages of both the pressure and pressureless steamers thus allowing increased cooking flexibility.

One innovative type of steamer is the combination convection oven/steamer. The greatest benefit of combination convection oven/steamers is that two separate conventional cooking techniques are combined into a single piece of equipment. These units have three cooking modes: steam, hot air, and combination. The combination mode blends the advantages of steam cookery with those of convected heat by using superheated steam to speed cooking. the versatile combination convection oven/steamer can be used to steam, blanch, poach, bake, roast, and rethermalize food products that are moist and nutritious.

Questions to Consider

- How many meals are to be prepared?
- What types of food products will be prepared in the steamer?
- Does this steamer have the necessary capacity to allow for increased production due to participation growth?
- Does this steamer allow for production flexibility?
- How often and for how many food items will this steamer be used?
- How many steamer compartments do I need?
- Do I need a direct steam model or a steamer with a self-contained boiler?
- If I select a direct steam model, do I have clean steam in this kitchen? If I don't do I need a converter or should I purchase a steamer with a self-contained boiler?
- Do I need a steamer with a gas- or electric-powered boiler?
- Do I want a pressureless, low pressure (5 psi), high pressure (15 psi) or pressure/pressureless steamer?
- Do I want to operate other equipment such as kettles from the same boiler as the steamer? Do I need a larger boiler?
- How many steamtable (12x20x2 inch) pans does each compartment hold?

- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- How many KWs or BTUs does this steamer use? Is it energy efficient?
- If I purchase a gas steamer, are there any electrical requirements for the controls?
- Do I need water (hot or cold) and/or a floor drain to install this steamer?
- Is the steamer NSF and AGA design certified or UL listed?
- Is this steamer ASME shop inspected?
- What are the dimensions of this steamer? Will it fit in the space available in this kitchen?
- What is the life expectancy of this steamer?

- Does the steamer have a safety value to release steam pressure? Is this automatic or does an employee manually release it? At what psi level, does this happen? How often does it occur?
- Is there a pressure gauge on the steamer?
- What are the ventilation requirements for this steamer?
- What optional features do I need?
- What do I need to know about the controls on this steamer?
- Does the steamer automatically turn off at the end of a timed steaming cycle or does it continue cooking until someone opens the door?
- Does the steamer automatically exhaust steam from compartments when timed cycle is finished?
- How long does it take the steamer to pre-heat?
- Can the doors be re-hung if the standard left hand hinge opening is not convenient in my kitchen?
- Are legs a standard feature?
- Can other equipment (kettles) be operated from the steamer boiler?

- Is the steamer easy to operate?
- Is the steamer easy to clean?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this steamer?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this steamer?
- What type of maintenance (preventive and annual) is required for the boiler?
- Is a water-softening unit needed on this steamer?
- What type of safety features are built into the steamer?
- In the pressure steamers, are there safety features so that the doors cannot be opened until the steam pressure is reduced?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

RANGES

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) 2-burner range
401 - 700	(1) 2-burner range
701 - 1000	(1) 2-burner range

Description

Use of ranges in foodservice has changed significantly. Once considered the mainstay of all food preparation, ranges most often are used for saute cooking and quick preparation of small amounts of food. Other equipment is available that perform many range functions more effectively with less requirements for employee skill and consumption of energy; therefore, most noncommercial foodservice facilities are using ranges less and other types of equipment more. Quantity preparation of entrees and vegetables are easily prepared in tilting braising pans, steamers, or combination convection oven/steamers. For these reasons, many new noncommercial foodservice facilities are being designed without any ranges.

Range types differ in levels of heavy duty construction or weight. Heavy-duty ranges are durable and well-suited for large volume foodservice operations with constant usage. Medium weight or restaurant type ranges are lighter in construction and can be used where operational demands are less constant. Cook tops of ranges are available in a variety of forms from open grates, cast iron or steel plates, to tubular metal elements. Underneath the range top there may be only legs, a storage cabinet, or an oven.

Both gas and electric ranges are available in a variety of sizes. Ranges with two burners can be purchased that are 12 - 17 inches wide. These ranges are suitable for many school kitchens that have other equipment available for preparation of most food items.

Questions to Consider

- How many meals are to be prepared?
- What types of food products will be prepared on this range?
- Does this range have the necessary capacity to allow for increased production due to participation growth?
- How often and for how many food products will this range be used?
- What size of range do I need?

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- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain the necessary utilities?
- Do I need a gas or electric range?
- How many KWs or BTUs does this range use? Is it energy efficient?
- Are the gas connections located on the side or rear of this range?
- What are the dimensions of this range? Will it fit in the space available in this kitchen?
- Is the range NSF listed and AGA design certified or UL listed?
- What is the life expectancy of this range?
- What are the ventilation requirements for this range?
- What optional features do I need?
- What is the exterior finish for the front, sides and back of the range?
- What other types of exterior finish are available?
- What type of cook top is furnished with this range? Are other types available?
- Is this range furnished with a cabinet base? What are the interior dimensions?
- Are legs standard?
- Does this range have a removable drip/crumb tray?
- Do I need a backguard or shelf on this range? What choices are available?

- Is the range easy to operate?
- Is the range easy to clean?
- What preventive maintenance procedures are recommended?
- Who is the authorized service agent for this range?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this range?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

MIXERS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) 60 qt. mixer with 30 qt. attachments
401 - 700	(1) 60 qt. mixer with 30 qt. attachments
701 - 1000	(1) 30 qt. and (1) 60 qt. mixers

Description

The mixer is a multifaceted piece of equipment that is found in nearly all foodservice operations. Mixers are primarily used for blending large quantities of food into consistent mixtures. It is the equipment of choice for mixing solids into solids, liquids and solids, and liquids into liquids. Mixers also have a dual purpose of incorporating air and developing a crystalline structure for specific food products. They come with a variety of attachments which help in improving the productivity of an operation. When selecting an appropriate mixer for your operation one should consider the greatest volume of food that would be prepared at once. Mixer sizes range from 5 to 140 quarts. Normally the mixer bowl is stationary, and the mixer head rotates inside the bowl. This feature allows for a dual circular motion of the head that improves product mixtures. Mixers that are larger than 80 quarts are usually constructed with power lifts. The advantage to the power lift is that it raises the heavy bowl to the proper position.

Most manufactures of mixers have different finishes available. Many provide an enamel or metallic gray polyurethane as the standard finish. Stainless steel finishes are available at an additional cost. Mixing bowls also have finish options. Although tinned steel is usually the standard finish, consideration should be given to a stainless steel bowl. Many times the tin finish wears off and the bowl will require retinning. This inoperative time could be eliminated by the initial purchase of a stainless steel bowl.

Mixers are operated by an electric motor ranging in size from 1/3 to 5 horsepower. They are available in table or wall mount, and floor models. Mixers have a variety of attachments that allow for task diversity. Specific task requirements will determine the attachments to be purchased. Attachments range from beaters, whips, dough hook, hub, speed-drive, grating, slicing, etc.

Questions to Consider

- How many meals are to be prepared?
- What capacity of mixer do I need?
- What types of food products will be prepared in this mixer?
- How often and for how many food items will this mixer be used?
- What are the maximum production demands of the mixer?

- Does this mixer have the necessary capacity to allow for increased production due to participation growth?
- Would the purchase of an additional mixer bowl increase flexibility and be money well spent to increase productivity ?

- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- What are the dimensions of this mixer? Will it fit in the space available in this kitchen?
- What are the standard attachments for this mixer?
- What additional attachments are available?
- Is the mixer NSF/UL listed?
- Are mixer parts that have direct contact with the product easy to remove and clean?
- What type of switch does this mixer have?
- What do I need to know about operating and understanding the controls on this mixer?
- What safety features are designed into this mixer?
- Do I need more than one mixer in my operation?

- Is the mixer easy to operate?
- Is the mixer easy to clean?
- What preventive maintenance procedures are recommended?
- What optional features do I need?
- Who is the factory authorized service agent for this mixer?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this mixer?
- What is the life expectancy of this mixer?
- Is this mixer located in a convenient area to accomplish job task?
- What is the best location for the mixer?
- Will the mixer be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the mixer?
- Do I need a water hose located near the mixer?
- What type of storage do I need for the attachments?
- If I purchase the slicer and grater attachments will I need to purchase a food processor?

- Do I need a training demonstration of the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

SLICERS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) automatic slicer
401-700	(1) automatic slicer
701 - 1000	(2) automatic slicers

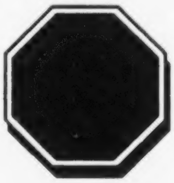
Description

Slicers are an essential part of the traditional commercial kitchen. They enhance an operation by saving time and labor and provide consistency of food served. Their basic design includes a circular knife blade that is operated electrically. The slicer carriage supports and holds the food product as it feeds to the moving blade. The carriage is electrically operated for larger machines. The smaller slicers are operated by hand. The carriage is assisted by gravity to accomplish the feeding process. Most slicers have a regulator or gauge plate that adjusts the thickness of the slice. Slicers are a piece of equipment that demands respect of the operator. This respect is heightened by built-in safety features such as safety guards that help to protect the operator's contact with the slicer blade. Many machines also have a safety feature that prevent the slicer from operating when guards are not in place.

Slicers come in a wide variety of sizes and with optional attachments that provide diversity and efficiency. Slicers with a large blade provide greatest versatility of all slicers, but requires more working space. Slicers are available with a hand-operated carriage or a fully automated carriage. The knife construction is available in stainless steel and chrome steel. Finishes range from burnadized aluminum, anodized aluminum and stainless steel. Slicer controls consist of an on and off switch, and slide or knob controls which adjust to desired product thickness. When planning to incorporate a slicer in an establishment plan for a convenient receptacle that is properly grounded and has appropriate voltage and wattage at each task site.

Questions to Consider

- How many meals are to be prepared?
- For what type of food products will this slicer be used?
- How often and for how many food items will this slicer be used?
- What type of portion control system does this slicer have? Will it cut off automatically when the desired number of portions are sliced?



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- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- What size horsepower does the motor have? Is it designed for heavy duty and frequent operation?
- What are the dimensions of this slicer? Will it fit in the available space?
- Is this slicer NSF and UL listed?
- Does this slicer have a knife guard as a safety feature?
- Does a knife sharpener come standard with this slicer?
- Is the carriage semi-automatic or automatic?
- What is the finish of the housing?
- What is the finish of the slicer blade?
- What is the diameter of the slicer blade?
- How many speeds does the slicer have?
- Does this slicer provide ease of disassemble and exposure of cleaning all parts?
- Does this slicer operate when the guard is not in place?
- What safety features are designed for this slicer?
- What optional features do I need?

- Is this slicer easy to operate?
- Is this slicer easy to clean?
- What do I need to know about operating and understanding the control on this slicer?
- What is the life expectancy of this slicer?
- Are all bearings permanently lubricated?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this slicer?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost of this slicer?

- Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

FOOD PROCESSORS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	(1) food processor (table top)
401-700	(1) food processor (table top)
701-1000	(1) food processor (table top)

Description

Food processors are high speed machines designed to blend, cut, mix, and chop large quantities in a matter of minutes. These machines have evolved into an essential part of a foodservice operation with the push for efficiency of labor and product diversity. Many provide top loading capability for food items. This feature allows for items to safely feed through the head and be pressed down with a pusher plate. Food contact is made with a semicircular blade. As the blade rotates rapidly under a protective cover, food is quickly processed. Most food processors come with many attachments. Evaluating the menu will help in selecting the attachments necessary to accomplish the desired tasks. Most manufacturers have substantial stock availability which allows for the attachment inventory to be expanded as needed.

Operations that utilize the food processor in all aspects of production have the capability of improving productivity. It is ideal for blending, slicing, chopping, and dicing vegetables, fruits, meats, cheeses, eggs, and bakery products. The popularity of this machine can only grow with use. Operations that desire maximum use of the food processor benefit by mounting the food processor on a cart with locking casters for easy accessibility. Also, plan for a convenient receptacle that is properly grounded and has appropriate voltage and wattage at each task site.

When purchasing a food processor plan for an area to store blades and attachments. Improper storage increases the possibility of dulling or damaging the blades and attachments. Evaluation of the safety features is important when choosing a food processor. Features such as automatic shut-off to halt the motor when the cover is opened, and ease in dismantling the unit for cleaning are important to consider prior to purchase.

Questions to Consider

- How many meals are to be prepared?
- How often will this food processor be used?
- What type of food products will this food processor prepare?
- What versatile features does this machine have?
- How can this processor enhance my production needs?
- Does this food processor have the necessary capacity to allow for increased production due to participation growth?

- What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?
- What is the horsepower (HP) of the motor? Will I be able to perform heavy duty processing with this machine?
- Is this food processor NSF and UL listed?
- What are the dimensions of this food processor? Will it fit in the available space or will I be better served mounting it on a cart?
- Does this processor allow for production flexibility?
- What special features do I need for this food processor?
- What safety features are designed for this food processor?
- What optional features do I need?
- What attachments are provided as standard?
- What additional attachments are available?
- Does this food processor have a "fail safe" feature that prevents the operation of the machine when the cover is opened?
- Is the blade constructed from stainless steel?
- What is the cutting tool construction? What is the durability of the material?
- How many speeds does this food processor have?
- What is the exterior finish?

- Is this food processor easy to operate?
- Is this food processor easy to clean?
- Will a demonstration be provided for determining attachment needs?
- What is the warranty and what is covered?
- Does this food processor provide easy dismantling with a minimum of removable parts?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this food processor?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the budget cost of this slicer?
- What is the life expectancy of this food processor?
- If I already have the slicer and grater attachments for my mixer do I really need to purchase this food processor?

- Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

HEATED CABINETS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	1 section heated cabinet
401 - 700	2 section heated cabinet
701 - 1000	3 section heated cabinet

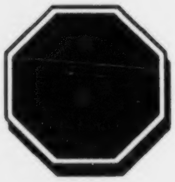
Description

Heated cabinets are one type of food warmers used in foodservice facilities. This type of equipment is necessary to keep prepared food hot for service and to have the needed quantity of food available for the serving line. The use of heated cabinets also help facilitate production during peak loads in the kitchen. Be conservative when specifying the number and capacity of food warmers. To encourage batch cooking, there should be enough heated cabinets to hold only a small portion of the total food needed for the meal period. **Heated cabinets are not cooking equipment. Food placed in this equipment to heat to serving temperature may be held in the danger zone too long.**

There are many types of heated cabinets on the market, from mobile or stationary cabinets; non-insulated or insulated units; and reach-in, pass-thru, roll-in, or roll-thru cabinets. Decisions have to be made on pan slides for the interior of the heated cabinets. Some units are made specifically to hold 18x26 inch baking pans or 12x20 inch steamtable pans. The standard interior arrangement for some reach-in or pass-thru heated cabinets is three wire shelves; therefore, all pan slides must be specified. Pan slides are available to hold 18x26 inch pans, 12x20 inch pans, or both. The term, universal angle, is used to indicate pan slides which hold both sizes of pans. Some manufacturers allow the purchaser to specify how many inches apart the pan slides are to be permanently installed while other companies provide adjustable pan slides.

Heated pass-thru cabinets are available that are similar in appearance to a single compartment refrigerator. They are often used in schools where the kitchen and serving area are in separate but adjacent areas. The pass-thru units are placed in a wall opening located near the cooking equipment and the heated serving line. Menu items can be loaded on the kitchen side and unloaded in the serving area. One convenient accessory is glass doors on the kitchen side of the pass-thru cabinets that enable the kitchen staff to see when the food supply is low without opening the door.

Questions to Consider



- How many meals are to be prepared and served?
- What types of food products will be held in the heated cabinets?
- How often and for how many food items will this heated cabinet be used?
- Does this heated cabinet have the necessary capacity to allow for increased demand due to participation growth?

- What type of food pans will the menu items be in? Will the food products be individually plated?
- How many heated cabinet sections do I need?
- Do I need a reach-in, pass-thru, roll-in, or roll-thru heated cabinet?
- Do I need a stationary or mobile heated cabinet?
- Do I need an insulated or non-insulated heated cabinet?

- What power requirements are necessary?
- Is this unit supplied with a cord and plug or is it permanently wired?
- How many amps does this unit use?
- What are the dimensions of this heated cabinet? Will it fit in the space available in this kitchen?
- What is the life expectancy of this heated cabinet?
- Is the heated cabinet NSF and UL listed?
- What optional features do I need?
- What is the temperature range of this cabinet?
- Are legs standard?
- Are pan slides standard?
- What type of pan slides do I need? How many pan slides do I need?
- Are pan slides permanently fixed to the cabinet wall or are they adjustable?
- What type of door handles does this heated cabinet have?
- What type of doors are standard?
- Are half doors available?
- Are glass doors available?
- How sturdy and dependable are the brakes on the mobile heated cabinet?
- What type of thermometer is provided?
- How many interior lights are provided?
- Can the doors be re-hung if the standard hinge opening is not convenient in my kitchen?
- Is the heated cabinet easy to use?
- Is the heated cabinet easy to clean?
- What preventive maintenance procedures are recommended?

- Who is the factory authorized service agent for this heated cabinet?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- Is an extended warranty available?
- What is the budget cost for this heated cabinet?
- What do I need to know about the controls on this heated cabinet? Where are they located?
- What is the exterior finish?
- What is the interior finish?
- What other types of exterior finish are available?
- What type of heating system is used?
- What type and thickness of insulation is used?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a videotape that I can use to train new employees?

REFRIGERATORS

MEALS PREPARED PER DAY	NUMBER AND TYPE EQUIPMENT
< 400	1 section refrigerator
401 - 700	2 section refrigerator
701 - 1000	2 section refrigerator

Description

Refrigerators are one type of cold storage equipment used in foodservice facilities. Refrigerators located near the serving area are necessary to keep prepared food cold for service and to have the needed quantity of cold food for the serving line. These units are not meant to be the primary cold storage units for the foodservice facility.

There are several types of refrigerators on the market, from mobile or stationary units; and reach-in, pass-thru, roll-in, or roll-thru units. Many units are one, two, or three section reach-in or pass-thru refrigerators specified with special interior accessories. The standard interior arrangement for most reach-in or pass-thru refrigerators is three wire shelves. Pan slides are usually specified to facilitate the use of steamtable and/or baking pans in the refrigerated cabinet. The term, universal angle, is used to indicate pan slides which hold both sizes of pans. Some manufacturers allow the purchaser to specify how many inches apart the pan slides are to be permanently installed while other companies provide adjustable pan slides.

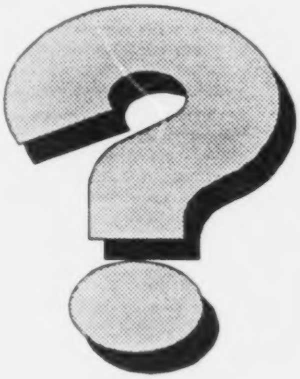
Refrigerated pass-thru units often are used in schools where the kitchen and serving area are in separate but adjacent areas. Pass-thru refrigerators open from both sides and should be located adjacent to both production and service areas. Menu items can be loaded on the kitchen side and unloaded in the serving area. One convenient accessory is glass doors on the kitchen side of the pass-thru cabinets that enable the kitchen staff to see when the food supply is low without opening the door.

Questions to Consider

- How many meals are to be prepared and served?
- What types of food products will be stored in the refrigerators?
- What type of food pans will the menu items be in? Will the food products be individually plated?
- How often and for how many food items will this refrigerator be used?
- Does this refrigerator have the necessary capacity to allow for increased demand due to participation growth?

- How many refrigerator sections do I need?
- Do I need a reach-in, pass-thru, roll-in, or roll-thru refrigerator?
- Do I need a stationary or mobile refrigerator?

- What power requirements are necessary?
- Is the unit supplied with a cord and plug or is it permanently wired?
- What size compressor is in this refrigerator?
- How many amps does this unit use?
- What are the dimensions of the refrigerator? Will it fit in the space available in this kitchen?
- What is the life expectancy of this refrigerator?
- Is the refrigerator NSF and UL listed?
- What optional features do I need?
- What is the temperature range of this unit?
- Are legs standard?
- What type of pan slides do I need?
- How many pan slides do I need?
- Are pan slides permanently fixed to the refrigerator wall or are they adjustable?
- What type of door handles does this unit have?
- What type of doors are standard?
- Are half doors available?
- Are glass doors available?
- What type of thermometer is provided?
- How many interior lights are provided?
- Can the doors be re-hung if the standard hinge opening is not convenient in my kitchen?



- Is the refrigerator easy to use?
- Is the refrigerator easy to clean?
- What preventive maintenance procedures are recommended?
- Who is the factory authorized service agent for this refrigerator?
- How long does it take to receive replacement parts and where are they inventoried?
- What is the warranty and what is covered?
- What is the compressor warranty?
- Is an extended warranty available?
- What is the budget cost for this refrigerator?
- What do I need to know about the controls on this refrigerator? Where are they located?
- What is the exterior finish?
- What is the interior finish?
- What other types of exterior finish are available?
- What type of refrigeration system is used?
- What type and thickness of insulation is provided?

- Where are the evaporator coils located?
- Are heater wires provided around each door frame?

- Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?
- Does the manufacturer provide a training video that I can use to train new employees?

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APPENDIX A

SAMPLE OF MENUS MAILED TO EXPERT PANEL

HEALTHY MENUS

Day: MONDAY

LUNCH MENU, NUMBER 1 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	COMMENTS	PORTION K-6	PORTION 7-12	PLANNED
Meat/Meat Alternate CUSTOMER SELECT ONE	Spaghetti with Meat Sauce	Use extra lean beef	1 serv.	1.5 serv.	40
	Toasted Turkey Swiss Sandwich	Use whole wheat bread	1 each	1 each	60
Grain/Bread CUSTOMER SELECT ONE	French Bread		1 slice	2 slices	45
	Crackers		8	12	55
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Mixed Vegetables	Use frozen vegetables	1/2 c.	1/2 c.	65
Vegetable	Tossed Green Salad		3/4 c.	3/4 c.	75
Fruit	Fruited Gelatin		1/2 c.	1/2 c.	70
Milk Customer Select ONE	Whole		8 oz.	8 oz.	20
	Skim		8 oz.	8 oz.	10
	Lowfat	Use 2 %	8 oz.	8 oz.	10
	Lowfat Chocolate	Use 1 %	8 oz.	8 oz.	60
Condiments	Butter/Margarine		1 tsp.	2 tsp.	30
	Salad Dressing	Use lowfat	1 oz.	1 oz.	40/40
Dessert	Apple Crisp		1 2x2"	1 2x2"	75

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HEALTHY MENUS

Day: TUESDAY

LUNCH MENU, NUMBER 2 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	COMMENTS	PORTION K-6	PORTION 7-12	PLANNED
Meat/Meat Alternate CUSTOMER SELECT ONE	Chicken Vegetable Stirfry with Rice		6 oz. 4 oz.	8 oz. 6 oz.	30
	Hamburger and fixings		1 2 oz. 1 ea.	1 3 oz. 1 ea.	70
Grain/Bread CUSTOMER SELECT ONE	Roll		1 each	2 each	40
	Whole Wheat Crackers		8 each	12 each	60
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Potato Wedges		1/2 c.	1 c.	100
Vegetable	Garden Salad		3/4 c.	3/4 c.	50
Fruit	Applesauce		1/2 c.	1/2 c.	50
Milk Customer Select ONE	Whole		8 oz.	8 oz.	20
	Skim		8 oz.	8 oz.	10
	Lowfat	Use 2 %	8 oz.	8 oz.	10
	Lowfat Chocolate	Use 1 %	8 oz.	8 oz.	60
Condiments	Butter/Margarine		1 tsp.	2 tsp.	20
	Salad Dressing		2 T.	2 T.	25/25
	Ketchup		2 T.	2 T.	100
	Mustard		1 tsp.	1 tsp.	50
Dessert	Chocolate Pudding		1/2 c.	1/2 c.	75

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HEALTHY MENUS

Day: WEDNESDAY

LUNCH MENU, NUMBER 3 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	COMMENTS	PORTION K-6	PORTION 7-12	PLANNED
Meat/Meat Alternate CUSTOMER SELECT ONE	Mexican Burrito		6 oz.	6 oz.	65
	Ham and Cheese in a Pita	Use whole wheat pita	1 oz.	2 oz.	
			1 oz.	2 oz.	35
			1/2	1	
Grain/Bread CUSTOMER SELECT ONE	Mexican Rice		1/2 c.	3/4 c.	65
	Pretzels		1 oz.	1 oz.	35
Vegetable/Fruit CUSTOMER SELECT TWO			1/2 c.	1/2 c.	100
Vegetable	Mixed Corn Fiesta	Use frozen	1/4 c.	1/4 c.	60
Vegetable	Fresh Cauliflower and Broccoli		1/4 c.	1/4 c.	
Fruit	Chilled Pear	Use fresh	1 whole	1 whole	40
Milk Customer Select ONE	Whole		8 oz.	8 oz.	20
	Skim		8 oz.	8 oz.	10
	Lowfat	Use 2 %	8 oz.	8 oz.	10
	Lowfat Chocolate	Use 1 %	8 oz.	8 oz.	60
Condiments	Salsa		3 T.	3 T.	50
	Ranch Dip		2 T.	2 T.	60
Dessert	Oatmeal Cookie		1 each	2 each	80

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HEALTHY MENUS

Day: THURSDAY

LUNCH MENU, NUMBER 4 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	COMMENTS	PORTION K-6	PORTION 7-12	PLANNED
Meat/Meat Alternate CUSTOMER SELECT ONE	Cheese Pizza		1 slice	1 slice	70
	Grilled Chicken Sandwich with Lettuce and Tomato	Use prepared chicken breast Use a whole wheat bun	1 each	1 each	30
Grain/Bread CUSTOMER SELECT ONE	Breadsticks	Use prepared product	2 each	3 each	80
	Pasta w/herb seasonings		1/2 c.	1/2 c.	20
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Criss Cut Potatoes		1/2 c.	1 c.	100
Vegetable	Broccoli Slaw	Use lowfat mayonnaise or nonfat yogurt	1/2 c.	1/2 c.	30
Fruit	Orange Wedges		1 med.	1 med.	70
Milk Customer Select ONE	Whole		8 oz.	8 oz.	20
	Skim		8 oz.	8 oz.	10
	Lowfat	Use 2 %	8 oz.	8 oz.	10
	Lowfat Chocolate	Use 1 %	8 oz.	8 oz.	60
Condiments	Ketchup		2 T.	2 T.	100
	Mustard		1 tsp.	1 tsp.	70
	Mayonnaise		1 tsp.	1 tsp.	20
	BBQ sauce		2 T.	2 T.	75
	Pizza sauce		2 T.	2 T.	100
Dessert	Applesauce Cup Cake		1 cupcake	1 cupcake	80

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HEALTHY MENUS

Day: FRIDAY

LUNCH MENU, NUMBER 5 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	COMMENTS	PORTION K-6	PORTION 7-12	PLANNED
Meat/Meat Alternate CUSTOMER SELECT ONE	Pasta, Beef and Tomato Casserole	Use extra lean ground beef	5 oz.	6 oz.	60
	Fish Sandwich	Use whole wheat bun	4 oz. 1	4 oz. 1	40
Grain/Bread CUSTOMER SELECT ONE	Hot Roll		1 each	2 each	60
	Bran Muffin		1 each	1 each	40
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Green Peas	Use frozen	1/2 c.	1/2 c.	20
Vegetable	Tossed Salad		3/4 c.	3/4 c.	80
Fruit	Sliced Peaches		1/2 c.	1/2 c.	100
Milk Customer Select ONE	Whole		8 oz.	8 oz.	20
	Skim		8 oz.	8 oz.	10
	Lowfat	Use 2 %	8 oz.	8 oz.	10
	Lowfat Chocolate	Use 1 %	8 oz.	8 oz.	60
Condiments	Salad Dressing	Use lowfat	1 T.	1 T.	45/40
	Butter/Margarine		1 tsp.	2 tsp.	100
	Ketchup		2 T.	2 T.	40
	Mustard		1 tsp.	1 tsp.	20
	Tartar Sauce		1 T.	1 T.	20
Dessert	Rainbow Sherbert		1/2 c.	1/2 c.	60

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APPENDIX B

EXPERT PANEL

PARTICIPANT LIST

MENU REVIEW PANEL
PARTICIPANT LIST

Anita Finch
Bellevue Public Schools
12037 NE Fifth
Bellevue, WA 98005

Sandy Ford
Blue Valley School District
P.O. Box 23901
Overland Park, KS 66223

Gail Kavanaugh
P.O. Box 820065
Vicksburg, MS 39182

Linda Min
Norfolk Public Schools
974 Bellmore Avenue
Norfolk, VA 23504

Nancy Willis
Sachem Central Schools
245 Union Avenue
Halbrook, NY 11741

PREPARATION EQUIPMENT REVIEW PANEL
PARTICIPANT LIST

Janice Dana, EdD, RD
Department of Hotel, Restaurant, and
Institution Management
Iowa State University
11 MacKay Hall
Ames, IA 50011-1120

Lynn Hall, FCSI, RD
1070 York Trace
Marietta, GA 30064

Mary Klatko
Howard County Public Schools
10910 Route 108
Ellicott City, MD 21042

Jim Landry
The Wallin Group
P.O. Box 231010
New Orleans, LA 70183

Tina Lauersdorf
Wakefield Public Schools
60 Farm Street
Wakefield, MA 01880

Vonceil Lety
Moss Point School District
4924 Church Street
Moss Point, MS 39563

Henrietta Moore
Detroit Public Schools
Longfellow Annex
13141 Rose Parks
Detroit, MI 48238

Sally Sitler
Broken Arrow Public Schools
601 South Main
Broken Arrow, OK 74012

Helen Westland
Bellevue School District
12037 NE Fifth
Bellevue, WA 98005

APPENDIX C

NUTRIENT ANALYSIS OF CYCLE MENUS

Nutrient Analysis Breakfast Menu Offerings - Limited Choice

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	No	98	Yes	226	Yes	158	Yes	171	Yes	174	Yes	337	Yes	26	Yes	10
Breakfast 2	5	11	100	No	88	Yes	219	Yes	168	Yes	105	Yes	146	Yes	346	Yes	21	Yes	9
Breakfast 3	5	11	100	Yes	106	Yes	246	Yes	146	Yes	146	Yes	129	Yes	212	Yes	16	Yes	7
Breakfast 4	5	11	100	No	94	Yes	292	Yes	142	Yes	137	Yes	148	Yes	404	Yes	24	Yes	7
Breakfast 5	5	11	100	Yes	129	Yes	235	Yes	194	Yes	157	Yes	258	Yes	610	No	34	Yes	10
Summary	5	11	500	Yes	103	Yes	244	Yes	162	Yes	143	Yes	171	Yes	382	Yes	25	Yes	9

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	108	Yes	200	Yes	131	Yes	274	Yes	175	Yes	306	Yes	30	No	11
Breakfast 2	12	17	100	No	78	Yes	147	Yes	135	No	90	Yes	126	Yes	304	Yes	23	Yes	10
Breakfast 3	12	17	100	Yes	123	Yes	259	Yes	144	Yes	357	No	66	Yes	292	Yes	18	Yes	6
Breakfast 4	12	17	100	No	94	Yes	262	Yes	110	Yes	215	Yes	128	Yes	113	Yes	24	Yes	7
Breakfast 5	12	17	100	Yes	119	Yes	149	Yes	152	Yes	179	Yes	280	Yes	273	Yes	29	Yes	8
Summary	12	17	500	Yes	105	Yes	203	Yes	135	Yes	223	Yes	155	Yes	258	Yes	25	Yes	8

Nutrient Analysis Breakfast Menu Offerings - Limited Choice

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	No	96	Yes	250	Yes	216	Yes	107	Yes	127	Yes	412	Yes	27	No	14
Breakfast 2	5	11	100	Yes	106	Yes	236	Yes	158	Yes	159	Yes	166	Yes	311	Yes	25	Yes	10
Breakfast 3	5	11	100	No	100	Yes	215	Yes	140	Yes	109	Yes	125	Yes	391	No	33	No	11
Breakfast 4	5	11	100	Yes	105	Yes	259	Yes	205	Yes	129	Yes	164	Yes	109	Yes	24	Yes	10
Breakfast 5	5	11	100	Yes	108	Yes	262	Yes	204	Yes	190	Yes	176	Yes	208	Yes	23	Yes	5
Summary	5	11	500	Yes	103	Yes	244	Yes	185	Yes	139	Yes	151	Yes	286	Yes	26	Yes	10

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	No	87	Yes	160	Yes	157	Yes	121	Yes	106	Yes	242	Yes	27	No	13
Breakfast 2	12	17	100	Yes	110	Yes	171	Yes	133	Yes	199	Yes	166	Yes	204	Yes	22	Yes	8
Breakfast 3	12	17	100	Yes	114	Yes	172	Yes	107	Yes	156	Yes	104	Yes	351	No	35	Yes	10
Breakfast 4	12	17	100	Yes	101	Yes	187	Yes	169	Yes	134	Yes	194	Yes	248	Yes	25	No	12
Breakfast 5	12	17	100	Yes	114	Yes	180	Yes	162	Yes	357	Yes	166	Yes	284	Yes	19	Yes	4
Summary	12	17	500	Yes	105	Yes	174	Yes	145	Yes	194	Yes	147	Yes	266	Yes	26	Yes	9

Nutrient Analysis Breakfast Menu Offerings - Full Choice

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	101	Yes	260	Yes	163	Yes	229	Yes	152	Yes	155	Yes	22	Yes	8
Breakfast 2	5	11	100	Yes	106	Yes	253	Yes	203	Yes	147	Yes	172	Yes	318	Yes	26	No	13
Breakfast 3	5	11	100	No	100	Yes	277	Yes	213	Yes	121	Yes	125	Yes	390	Yes	28	Yes	8
Breakfast 4	5	11	100	Yes	113	Yes	304	Yes	150	Yes	132	Yes	153	Yes	154	Yes	30	No	13
Breakfast 5	5	11	100	Yes	130	Yes	339	Yes	225	Yes	198	Yes	151	Yes	585	Yes	16	Yes	5
Summary	5	11	500	Yes	110	Yes	287	Yes	191	Yes	165	Yes	151	Yes	320	Yes	24	Yes	9

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	100	Yes	201	Yes	135	Yes	337	Yes	149	Yes	143	Yes	22	Yes	8
Breakfast 2	12	17	100	Yes	111	Yes	200	Yes	192	Yes	172	Yes	179	Yes	302	Yes	29	No	15
Breakfast 3	12	17	100	No	90	Yes	179	Yes	152	Yes	170	Yes	147	Yes	314	Yes	26	Yes	7
Breakfast 4	12	17	100	Yes	126	Yes	273	Yes	119	Yes	179	Yes	141	Yes	373	No	31	No	12
Breakfast 5	12	17	100	Yes	121	Yes	241	Yes	147	Yes	211	Yes	156	Yes	144	No	32	Yes	7
Summary	12	17	500	Yes	110	Yes	219	Yes	149	Yes	214	Yes	154	Yes	255	Yes	28	Yes	10

Nutrient Analysis Breakfast Menu Offerings - Full Choice

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	110	Yes	268	Yes	204	Yes	142	Yes	137	Yes	349	Yes	27	Yes	6
Breakfast 2	5	11	100	No	96	Yes	288	Yes	152	Yes	287	Yes	181	Yes	265	Yes	24	No	11
Breakfast 3	5	11	100	Yes	106	Yes	248	Yes	198	Yes	128	Yes	135	Yes	267	Yes	26	No	12
Breakfast 4	5	11	100	Yes	104	Yes	256	Yes	175	Yes	145	Yes	146	Yes	152	Yes	25	Yes	8
Breakfast 5	5	11	100	No	95	Yes	323	Yes	189	Yes	236	Yes	113	Yes	419	Yes	27	No	11
Summary	5	11	500	Yes	102	Yes	277	Yes	183	Yes	188	Yes	142	Yes	290	Yes	26	Yes	10

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	101	Yes	193	Yes	147	Yes	127	Yes	107	Yes	303	No	32	Yes	8
Breakfast 2	12	17	100	No	93	Yes	211	Yes	114	Yes	307	Yes	174	Yes	248	Yes	23	Yes	10
Breakfast 3	12	17	100	No	99	Yes	186	Yes	176	Yes	119	Yes	132	Yes	244	Yes	30	No	15
Breakfast 4	12	17	100	Yes	143	Yes	306	Yes	192	Yes	306	Yes	137	Yes	123	Yes	28	Yes	5
Breakfast 5	12	17	100	No	88	Yes	240	Yes	157	Yes	248	No	93	Yes	349	Yes	30	No	12
Summary	12	17	500	Yes	105	Yes	227	Yes	157	Yes	221	Yes	129	Yes	253	Yes	29	Yes	10

Nutrient Analysis Lunch Menu Offerings - Limited Choice

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	129	Yes	347	Yes	169	Yes	162	Yes	634	Yes	357	Yes	25	Yes	8
Breakfast 2	5	11	100	Yes	149	Yes	394	Yes	175	Yes	207	Yes	480	Yes	249	Yes	26	Yes	10
Breakfast 3	5	11	100	Yes	113	Yes	287	Yes	135	Yes	116	No	91	Yes	254	Yes	26	Yes	9
Breakfast 4	5	11	100	Yes	180	Yes	443	Yes	215	Yes	207	Yes	296	Yes	572	No	35	No	12
Breakfast 5	5	11	100	Yes	120	Yes	336	Yes	150	Yes	163	Yes	450	Yes	177	Yes	29	Yes	9
Summary	5	11	500	Yes	138	Yes	361	Yes	169	Yes	171	Yes	390	Yes	322	Yes	29	Yes	10

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	119	Yes	241	Yes	130	Yes	159	Yes	479	Yes	251	Yes	26	Yes	8
Breakfast 2	12	17	100	Yes	172	Yes	325	Yes	136	Yes	235	Yes	406	Yes	282	Yes	28	No	11
Breakfast 3	12	17	100	Yes	108	Yes	209	Yes	113	Yes	111	No	76	Yes	211	Yes	28	Yes	10
Breakfast 4	12	17	100	Yes	173	Yes	288	Yes	156	Yes	190	Yes	221	Yes	494	No	37	No	12
Breakfast 5	12	17	100	Yes	112	Yes	229	Yes	123	Yes	158	Yes	349	Yes	154	Yes	29	Yes	9
Summary	12	17	500	Yes	137	Yes	258	Yes	132	Yes	171	Yes	306	Yes	278	Yes	30	Yes	10

Nutrient Analysis Lunch Menu Offerings - Limited Choice

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	150	Yes	417	Yes	169	Yes	213	Yes	256	Yes	377	No	33	No	12
Breakfast 2	5	11	100	No	100	Yes	345	Yes	171	Yes	145	Yes	794	Yes	217	Yes	29	Yes	10
Breakfast 3	5	11	100	Yes	145	Yes	369	Yes	199	Yes	182	Yes	238	Yes	227	No	35	No	14
Breakfast 4	5	11	100	Yes	144	Yes	426	Yes	207	Yes	127	Yes	259	Yes	127	Yes	19	Yes	7
Breakfast 5	5	11	100	Yes	110	Yes	317	Yes	252	Yes	169	Yes	1309	Yes	280	Yes	25	Yes	10
Summary	5	11	500	Yes	130	Yes	375	Yes	200	Yes	167	Yes	571	Yes	245	Yes	28	Yes	10

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	139	Yes	317	Yes	134	Yes	202	Yes	194	Yes	321	No	33	No	12
Breakfast 2	12	17	100	Yes	101	Yes	267	Yes	137	Yes	151	Yes	1050	Yes	244	Yes	28	Yes	8
Breakfast 3	12	17	100	Yes	148	Yes	304	Yes	175	Yes	196	Yes	214	Yes	229	No	36	No	13
Breakfast 4	12	17	100	Yes	130	Yes	290	Yes	169	Yes	117	Yes	197	Yes	106	Yes	19	Yes	7
Breakfast 5	12	17	100	Yes	102	Yes	218	Yes	190	Yes	155	Yes	988	Yes	240	Yes	24	Yes	9
Summary	12	17	500	Yes	124	Yes	279	Yes	161	Yes	164	Yes	529	Yes	228	Yes	28	Yes	10

Nutrient Analysis Lunch Menu Offerings - Full Choice

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	101	Yes	320	Yes	161	Yes	148	Yes	434	Yes	206	Yes	25	Yes	8
Breakfast 2	5	11	100	Yes	120	Yes	353	Yes	209	Yes	159	Yes	258	Yes	113	Yes	29	No	11
Breakfast 3	5	11	100	Yes	153	Yes	391	Yes	151	Yes	193	Yes	1158	Yes	410	Yes	30	Yes	9
Breakfast 4	5	11	100	Yes	127	Yes	346	Yes	209	Yes	168	Yes	513	Yes	359	Yes	22	Yes	9
Breakfast 5	5	11	100	Yes	141	Yes	390	Yes	191	Yes	200	Yes	351	Yes	184	Yes	27	No	11
Summary	5	11	500	Yes	128	Yes	360	Yes	184	Yes	173	Yes	543	Yes	254	Yes	27	Yes	10

Cycle 1				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	117	Yes	268	Yes	147	Yes	175	Yes	397	Yes	237	Yes	27	Yes	8
Breakfast 2	12	17	100	Yes	131	Yes	262	Yes	180	Yes	170	Yes	215	Yes	113	Yes	30	Yes	10
Breakfast 3	12	17	100	Yes	163	Yes	317	Yes	123	Yes	210	Yes	924	Yes	458	Yes	30	Yes	9
Breakfast 4	12	17	100	Yes	131	Yes	259	Yes	165	Yes	167	Yes	389	Yes	320	Yes	22	Yes	8
Breakfast 5	12	17	100	Yes	133	Yes	283	Yes	160	Yes	185	Yes	344	Yes	167	Yes	27	Yes	10
Summary	12	17	500	Yes	135	Yes	278	Yes	155	Yes	181	Yes	454	Yes	259	Yes	27	Yes	9

Nutrient Analysis Lunch Menu Offerings - Full Choice

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	5	11	100	Yes	167	Yes	400	Yes	189	Yes	217	Yes	287	Yes	286	No	32	No	11
Breakfast 2	5	11	100	Yes	132	Yes	422	Yes	175	Yes	203	Yes	261	Yes	125	Yes	30	Yes	9
Breakfast 3	5	11	100	Yes	133	Yes	340	Yes	196	Yes	182	Yes	479	Yes	246	Yes	30	No	11
Breakfast 4	5	11	100	Yes	120	Yes	359	Yes	161	Yes	172	Yes	633	Yes	138	Yes	24	Yes	8
Breakfast 5	5	11	100	Yes	117	Yes	344	Yes	181	Yes	249	Yes	236	Yes	186	Yes	24	Yes	8
Summary	5	11	500	Yes	134	Yes	373	Yes	180	Yes	205	Yes	379	Yes	196	Yes	28	Yes	10

Cycle 2				Calories		Protein		Calcium		Iron		Vit. A		Vit. C		Tot. Fat		Sat. Fat	
Menu Day	Age From	Age To	People Fed	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% RDA	NSMP Met	% Cal.	NSMP Met	% Cal.
Breakfast 1	12	17	100	Yes	173	Yes	314	Yes	155	Yes	232	Yes	239	Yes	292	No^	33	No	11
Breakfast 2	12	17	100	Yes	122	Yes	282	Yes	134	Yes	188	Yes	196	Yes	108	Yes	28	Yes	9
Breakfast 3	12	17	100	Yes	134	Yes	246	Yes	147	Yes	176	Yes	417	Yes	242	Yes	30	No	11
Breakfast 4	12	17	100	Yes	115	Yes	256	Yes	134	Yes	169	Yes	482	Yes	114	Yes	25	Yes	7
Breakfast 5	12	17	100	Yes	119	Yes	291	Yes	163	Yes	240	Yes	223	Yes	194	Yes	26	Yes	9
Summary	12	17	500	Yes	133	Yes	278	Yes	147	Yes	201	Yes	312	Yes	190	Yes	29	Yes	9

APPENDIX D

SAMPLE OF MENU WITH EQUIPMENT RECOMMENDATIONS MAILED TO EXPERT PANEL

NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE

HEALTHY MENUS

Day: MONDAY

LUNCH MENU, NUMBER 1 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	PORTION K-6	PORTION 7-12	PLANNED 400	PLANNED 700	PLANNED 1000	PREPARATION EQUIPMENT
Meat/Meat Alternate CUSTOMER SELECT ONE	Spaghetti with Meat Sauce	1 serv.	1.5 serv.	160 160	280 280	400 400	kettle or braising pan steamer
	Toasted Turkey Swiss Sandwich	1 each	1 each	240	420	600	convection oven
Grain/Bread CUSTOMER SELECT ONE	French Bread	1 slice	2 slices	180	315	450	convection oven
	Crackers	8	12				
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Mixed Vegetables	1/2 c.	1/2 c.	260	455	650	steamer
Vegetable	Tossed Green Salad	3/4 c.	3/4 c.				
Fruit	Fruited Gelatin	1/2 c.	1/2 c.				
Milk Customer Select ONE	Whole	8 oz.	8 oz.				
	Skim	8 oz.	8 oz.				
	Lowfat	8 oz.	8 oz.				
	Lowfat Chocolate	8 oz.	8 oz.				
Condiments	Butter/Margarine	1 tsp.	2 tsp.				
	Salad Dressing	1 oz.	1 oz.				
Dessert	Apple Crisp	1 2x2"	1 2x2"	300	525	750	convection oven

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HEALTHY MENUS

Day: TUESDAY

LUNCH MENU, NUMBER 2 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	PORTION		PLANNED			PREPARATION EQUIPMENT
		K-6	7-12	400	700	1000	
Meat/Meat Alternate CUSTOMER SELECT ONE	Chicken Vegetable Stirfry with Rice	6 oz. 4 oz.	8 oz. 6 oz.	120 120	210 210	300 300	kettle or braising pan steamer
	Hamburger and fixings	1 2 oz. 1 ea.	1 3 oz. 1 ea.	280	490	700	steamer
Grain/Bread CUSTOMER SELECT ONE	Roll Whole Wheat Crackers	1 each 8 each	2 each 12 each	160	280	400	convection oven
Vegetable/Fruit CUSTOMER SELECT TWO							
Vegetable	Potato Wedges	1/2 c.	1 c.	400	700	1000	convection oven
Vegetable	Garden Salad	3/4 c.	3/4 c.				
Fruit	Applesauce	1/2 c.	1/2 c.				
Milk Customer Select ONE	Whole Skim Lowfat Lowfat Chocolate	8 oz. 8 oz. 8 oz. 8 oz.	8 oz. 8 oz. 8 oz. 8 oz.				
Condiments	Butter/Margarine Salad Dressing Ketchup Mustard	1 tsp. 2 T. 2 T. 1 tsp.	2 tsp. 2 T. 2 T. 1 tsp.				
Dessert	Chocolate Pudding*	1/2 c.	1/2 c.				

*No production equipment required

HEALTHY MENUS

Day: WEDNESDAY

LUNCH MENU, NUMBER 3 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	PORTION		PLANNED			PREPARATION EQUIPMENT
		K-6	7-12	400	700	1000	
Meat/Meat Alternate **CUSTOMER SELECT ONE**	Mexican Burrito	6 oz.	6 oz.	260	455	650	convection oven
	Ham and Cheese in a Pita*	1 oz. 1 oz. 1/2	2 oz. 2 oz. 1				
Grain/Bread **CUSTOMER SELECT ONE**	Mexican Rice	1/2 c.	3/4 c.	260	455	650	steamer
	Pretzels	1 oz.	1 oz.				
Vegetable/Fruit **CUSTOMER SELECT TWO** Vegetable	Mixed Corn Fiesta	1/2 c.	1/2 c.	400	700	1000	braising pan or steamer
Vegetable	Fresh Cauliflower and Broccoli*	1/4 c. 1/4 c.	1/4 c. 1/4 c.				
Fruit	Chilled Pear	1 whole	1 whole				
Milk Customer Select ONE	Whole	8 oz.	8 oz.				
	Skim	8 oz.	8 oz.				
	Lowfat	8 oz.	8 oz.				
	Lowfat Chocolate	8 oz.	8 oz.				
Condiments	Salsa	3 T.	3 T.				
	Ranch Dip	2 T.	2 T.				
Dessert	Oatmeal Cookie	1 each	2 each	320	560	800	convection oven

*No production equipment required

NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE

HEALTHY MENUS

Day: THURSDAY

LUNCH MENU, NUMBER 4 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	PORTION		PLANNED			PREPARATION EQUIPMENT
		K-6	7-12	400	700	1000	
Meat/Meat Alternate CUSTOMER SELECT ONE	Cheese Pizza	1 slice	1 slice	280	490	700	convection oven
	Grilled Chicken Sandwich with Lettuce and Tomato	1 each	1 each	120	210	300	steamer
Grain/Bread CUSTOMER SELECT ONE	Breadsticks	2 each	3 each	320	560	800	convection oven
	Pasta w/ herb seasonings	1/2 c.	1/2 c.	80	140	200	steamer
Vegetable/Fruit CUSTOMER SELECT TWO Vegetable	Criss Cut Potatoes	1/2 c.	1 c.	400	700	1000	convection oven
Vegetable	Broccoli Slaw	1/2 c.	1/2 c.				
Fruit	Orange Wedges	1 med.	1 med.				
Milk Customer Select ONE	Whole	8 oz.	8 oz.				
	Skim	8 oz.	8 oz.				
	Lowfat	8 oz.	8 oz.				
	Lowfat Chocolate	8 oz.	8 oz.				
Condiments	Ketchup	2 T.	2 T.				
	Mustard	1 tsp.	1 tsp.				
	Mayonnaise	1 tsp.	1 tsp.				
	BBQ Sauce	2 T.	2 T.				
	Pizza sauce	2 T.	2 T.				
Dessert	Applesauce Cup Cake	1	1	320	560	800	convection oven

HEALTHY MENUS

Day: FRIDAY

LUNCH MENU, NUMBER 5 CYCLE 1

LIMITED CHOICE

COMPONENT	MENU OFFERINGS	PORTION		PLANNED			PREPARATION EQUIPMENT
		K-6	7-12	400	700	1000	
Meat/Meat Alternate CUSTOMER SELECT ONE	Pasta, Beef and Tomato Casserole	5 oz.	6 oz.	240	420	600	steamer and kettle or braising pan
	Fish Sandwich	4 oz. 1	4 oz. 1	160	280	400	convection oven
Grain/Bread CUSTOMER SELECT ONE	Hot Roll	1 each	2 each	240	420	600	convection oven
	Bran Muffin	1 each	1 each	160	280	400	convection oven
Vegetable/Fruit CUSTOMER SELECT TWO							
Vegetable	Green Peas	1/2 c.	1/2 c.	80	140	200	steamer
Vegetable	Tossed Salad	3/4 c.	3/4 c.				
Fruit	Sliced Peaches	1/2 c.	1/2 c.				
Milk Customer Select ONE	Whole	8 oz.	8 oz.				
	Skim	8 oz.	8 oz.				
	Lowfat	8 oz.	8 oz.				
	Lowfat Chocolate	8 oz.	8 oz.				
Condiments	Salad Dressing	1 T.	1 T.				
	Butter/Margarine	1 tsp.	2 tsp.				
	Ketchup	2 T.	2 T.				
	Mustard	1 tsp.	1 tsp.				
	Tartar Sauce	1 T.	1 T.				
Dessert	Rainbow Sherbet	1/2 c.	1/2 c.				

APPENDIX E

EQUIPMENT PURCHASE DECISION FORMS

CONVECTION OVENS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared?	
Do I need a single or stacked oven?	
What types of food products will be prepared in this oven?	
Does this oven have the necessary capacity to allow for increased production due to participation growth?	
Does this oven provide production flexibility?	
How often and for how many items will this oven be used?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
Do I need a gas or an electric oven?	
How many KWs or BTUs does this oven use? Is it energy efficient?	
If I purchase a gas oven, are there any electrical connections required?	
What are the dimensions of this oven? Will it fit in the space available in this kitchen?	
What is the life expectancy for this oven?	

Is the oven NSF listed and AGA design certified or UL listed?	
What are the ventilation requirements for the oven?	
What optional features do I need?	
Do I want to purchase additional oven racks?	
Are legs included with this oven?	
What control panel options do I need?	
What is the temperature range of this oven?	
Is the oven easy to clean and operate?	
What preventive maintenance procedures are recommended?	
What do I need to know about this oven's heat transfer mechanism?	
How long does it take the oven to pre-heat?	
What are the differences in door construction?	
Who is the factory authorized service agent for this oven?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this oven?	
What exterior finishes are available for the sides, legs, and back panel? What is the cost differential?	
Do I need a glass insert in the door or can it be solid?	

Do I need a training demonstration on the operating, cleaning, and preventative maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ______________________________ convection oven.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:
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TILTING BRAISING PAN

School ____________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ____________________ Model No. ____________________

Manufacturers Representative ____

Phone No. ____________________ Fax No. ____________________

Questions to Consider	**Comments**
How many meals are to be prepared?	
What capacity of braising pan do I need?	
What types of food products will be prepared in this braising pan?	
Does this braising pan have the necessary capacity to allow for increased production due to participation growth?	
Does this braising pan provide production flexibility?	
How often and for how many food items will this braising pan be used?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
Do I need a gas or electric braising pan?	
How many KWs or BTUs does this braising pan use? Is it energy efficient?	
If I purchase a gas braising pan, are there any electrical requirements for controls?	
What are the dimensions of this braising pan? Will it fit in the space available in this kitchen?	
What is the life expectancy of this braising pan?	

Is the braising pan NSF listed and AGA design certified or UL listed?	
What are the ventilation requirements for this braising pan?	
What are the optional features and which ones do I need?	
What is the temperature range for this braising pan?	
What is the recommended pre-heat time for this braising pan?	
What will cause the pan bottom to dent or warp?	
Will the braising pan be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the braising pan?	
Do I need a spray rinse hose or filler faucet as an accessory?	
How is the cover constructed? Is it counterbalanced so that it will not slam?	
Where is the lifting handle located? Is it located where the employee can lift the cover without being in the path of steam?	
Are a cover vent and condensate drip shield provided in the pan cover?	
Is the braising pan easy to operate?	
Is the braising pan easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this braising pan?	
How long does it take to receive replacement parts and where are they inventoried?	

What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this braising pan?	
How is the bottom constructed?	
What do I need to know about the braising pan's heat transfer mechanism?	
If I select a braising pan with an electric tilting mechanism, is there a manual override in case of power failure?	
Does the manual tilting mechanism have a self-locking worm and gear assembly?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
_______________________________ tilting braising pan.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:
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KETTLES

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
Do I want a stationary or tilting kettle? What is the price differential?	
What capacity of kettle do I need?	
What types of food products will be prepared in this kettle?	
Does this kettle have the necessary capacity to allow for increased production due to participation growth?	
Does the kettle allow for production flexibility?	
How often and for how many food items will this kettle be used?	
What is a tangent draw-off? Is it standard on this kettle? Do I need it on this kettle?	
Is a kettle cover included as standard equipment?	
What types of kettle covers are available?	
How are table top kettles mounted?	
Is there a floor drain adjacent to the installation site for this kettle?	

What power requirements are necessary? Do I have the necessary utilities available in this kitchen? It not, how much will it cost to obtain necessary utilities?	
Do I need a self-contained or direct steam model?	
Do I need a gas or electric self-contained kettle?	
If I purchase a gas kettle, are there any electrical requirements for the controls?	
How many KWs or BTUs does this kettle use? Is it energy efficient?	
What are the dimensions of this kettle? Will it fit in the space available in this kitchen?	
What is the life expectancy of this kettle?	
Is the kettle NSF listed and AGA design certified or UL listed?	
Is this kettle ASME shop inspected? What is the maximum working pressure that this kettle is registered for?	
What are the ventilation requirements for this kettle?	
What optional features do I need?	
Will the kettle be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the kettle?	
Do I need a spray rinse hose or filler faucet as an accessory for this kettle?	
What benefit would it be to have etched numbers on the inside of the kettle indicating the volume of liquid? How much does it cost?	

Does the kettle have a safety valve to release the jacket steam pressure? Is this automatic or does an employee manually release it? At what psi level, does this happen? How often does it occur?	
Is there a pressure gauge on the kettle?	
Does the kettle have a temperature control?	
Is the kettle easy to operate?	
Is the kettle easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this kettle?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this kettle?	
For what applications would I need a 316 stainless steel interior for this kettle?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	
What do I need to know about operating and understanding the controls on this kettle?	
What safety features are designed into this kettle?	

Name, phone number, and recommendation of school food service directors who have used this
______________________________ kettle.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

STEAMERS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
What types of food products will be prepared in the steamer?	
Does this steamer have the necessary capacity to allow for increased production due to participation growth?	
Does this steamer allow for production flexibility?	
How often and for how many food items will this steamer be used?	
How many steamer compartments do I need?	
Do I need a direct steam model or a steamer with a self-contained boiler?	
Do I need a steamer with a gas- or electric-powered boiler?	
Do I want a pressureless, low pressure (5 psi), high pressure (15 psi), or pressure/pressureless steamer?	
How many steamtable (12x20x2 inch) pans does each compartment hold?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	

How many KWs or BTUs does this steamer use? Is it energy efficient?	
If I purchase a gas steamer, are there any electrical requirements for the controls?	
Do I need water (hot or cold) and/or a floor drain to install this steamer?	
Is the steamer NSF and AGA design certified or UL listed?	
Is this steamer ASME shop inspected?	
What are the dimensions of this steamer? Will it fit in the space available in this kitchen?	
What is the life expectancy of this steamer?	
Does the steamer have a safety valve to release steam pressure? Is this automatic or does an employee manually release it? At what psi level does this happen? How often does it occur?	
Is there a pressure gauge on the steamer?	
What are the ventilation requirements for this steamer?	
What optional features do I need?	
What do I need to know about the controls on this steamer?	
Does the steamer automatically turn off at the end of a timed steaming cycle or does it continue cooking until someone opens the door?	
How long does it take the steamer to pre-heat?	
Can the doors be re-hinged if the standard left hand hinging is not convenient in my kitchen?	
Are legs a standard feature?	

Can other equipment (kettles) be operated from the steamer boiler?	
Is the steamer easy to operate?	
Is the steamer easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this steamer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this steamer?	
What type of maintenance (preventive and annual) is required for the boiler?	
Is a water-softening unit needed on this steamer?	
What type of safety features are built into the steamer?	
In the pressure steamers, are there safety features so that the doors cannot be opened until the steam pressure is reduced?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
_______________________________ steamer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

RANGES

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ____

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
What types of food products will be prepared on this range?	
Does this range have the necessary capacity to allow for increased production due to participation growth?	
How often and for how many food products will this range be used?	
What size of range do I need?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain the necessary utilities?	
Do I need a gas or electric range?	
How many KWs or BTUs does this range use? Is it energy efficient?	
Are the gas connections located on the side or rear of this range?	
What are the dimensions of this range? Will it fit in the space available in this kitchen?	
Is the range NSF listed and AGA design certified or UL listed?	
What is the life expectancy of this range?	

What are the ventilation requirements for this range?	
What optional features do I need?	
What is the exterior finish for the front, sides and back of the range?	
What other types of exterior finish are available?	
What type of cook top is furnished with this range? Are other types available?	
Is this range furnished with a cabinet base? What are the interior dimensions?	
Are legs standard?	
Does this range have a removable drip/crumb tray?	
Do I need backguard or shelf on this range? What choices are available?	
Is the range easy to operate?	
Is the range easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the authorized service agent for this range?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this range?	

Do I need training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ______________________________ range.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

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MIXERS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared?	
What capacity of mixer do I need?	
What types of food products will be prepared in this mixer?	
How often and for how many food items will this mixer be used?	
What are the maximum production demands of the mixer?	
Does this mixer have the necessary capacity to allow for increased production due to participation growth?	
Would the purchase of an additional mixer bowl increase flexibility and be money well spent to increase productivity?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What are the dimensions of this mixer? Will it fit in the space available in this kitchen?	
What are the standard attachments for this mixer?	
What additional attachments are available?	
Is the mixer NSF/UL listed?	

Are mixer parts that have direct contact with the product easy to remove and clean?	
What type of switch does this mixer have?	
What do I need to know about operating and understanding the controls on this mixer?	
What safety features are designed into this mixer?	
Do I need more than one mixer in my operation?	
Is the mixer easy to operate?	
Is the mixer easy to clean?	
What preventive maintenance procedures are recommended?	
What optional features do I need?	
Who is the factory authorized service agent for this mixer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this mixer?	
What is the life expectancy of this mixer?	
Is this mixer located in a convenient area to accomplish job task?	
What is the best location for the mixer?	
Will the mixer be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the mixer?	
Do I need a water hose located near the mixer?	

What type of storage do I need for the attachments?	
If I purchase the slicer and grater attachments will I need to purchase a food processor?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this _______________________________ mixer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

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SLICERS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
For what type of food products will this slicer be used?	
How often and for how many food items will this slicer be used?	
What type of portion control system does this slicer have? Will it cut off automatically when the desired number of portions are sliced?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What size horsepower does the motor have? Is it designed for heavy duty and frequent operation?	
What are the dimensions of this slicer? Will it fit in the available space or will I be better served mounting it on a cart?	
Is this slicer NSF and UL listed?	
Does this slicer have a knife guard as a safety feature?	
Does a knife sharpener come standard with this slicer?	
Is the carriage semi-automatic or automatic?	
What is the finish of the housing?	

What is the finish of the slicer blade?	
What is the diameter of the slicer blade?	
How many speeds does the slicer have?	
Does this slicer provide ease of disassemble and exposure of cleaning all parts?	
Does this slicer operate when the guard is not in place?	
What safety features are designed for this slicer?	
What optional features do I need?	
Is this slicer easy to clean and operate?	
What do I need to know about operating and understanding the controls on this slicer?	
What is the life expectancy of this slicer?	
Are all bearings permanently lubricated?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this slicer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost of this slicer?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
_________________________ slicer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

FOOD PROCESSORS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
How often will this food processor be used?	
What types of food products will this food processor prepare?	
What versatile features does this machine have?	
How can this processor enhance my production needs?	
Does this food processor have the necessary capacity to allow for increased production due to participation growth?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What is the horsepower (HP) of the motor? Will I be able to perform heavy duty processing with this machine?	
Is this food processor NSF and UL listed?	
What are the dimensions of this food processor? Will it fit in the available space or will I be better served mounting it on a cart?	
Does this processor allow for production flexibility?	

What special features do I need for this food processor?	
What safety features are designed for this food processor?	
What optional features do I need?	
What attachments are provided as standard?	
What additional attachments are available?	
Does this food processor have a "fail safe" feature that prevents the operation of the machine when the cover is opened?	
Is the blade constructed from stainless steel?	
What is the cutting tool construction? What is the durability of the material?	
How many speeds does this food processor have?	
What is the exterior finish?	
Is this food processor easy to operate?	
Is this food processor easy to clean?	
Will a demonstration be provided for determining attachment needs?	
What is the warranty and what is covered?	
Does this food processor provide easy dismantling with a minimum of removable parts?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this food processor?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the budget cost of this slicer?	

What is the life expectancy of this food processor?	
If I already have the slicer and grater attachments for my mixer do I really need to purchase this food processor?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this _______________________________ food processor.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

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HEATED CABINETS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared and served?	
What types of food products will be held in the heated cabinets?	
How often and for how many food items will this heated cabinet be used?	
Does this heated cabinet have the necessary capacity to allow for increased demand due to participation growth?	
What type of food pans will the menu items be in? Will the food products be individually plated?	
How many heated cabinet sections do I need?	
Do I need a reach-in, pass-thru, roll-in, or roll-thru heated cabinet?	
Do I need a stationary or mobile heated cabinet?	
Do I need an insulated or non-insulated heated cabinet?	
What power requirements are necessary?	
Is this unit supplied with a cord and plug or is it permanently wired?	
How many amps does this unit use?	

What are the dimensions of this heated cabinet? Will it fit in the space available in this kitchen?	
What is the lift expectancy of this heated cabinet?	
Is the heated cabinet NSF and UL listed?	
What optional features do I need?	
What is the temperature range of this cabinet?	
Are legs standard?	
Are pan slides standard?	
What type of pans slides do I need? How many pan slides do I need?	
Are pan slides permanently fixed to the cabinet wall or are they adjustable?	
What type of door handles does this heated cabinet have?	
What type of doors are standard?	
Are half doors available?	
Are glass doors available?	
How sturdy and dependable are the brakes on the mobile heated cabinet?	
What type of thermometer is provided?	
How many interior lights are provided?	
Can the doors be re-hinged if the standard hinging is not convenient in my kitchen?	
Is the heated cabinet easy to use?	
Is the heated cabinet easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this heated cabinet?	

How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this heated cabinet?	
What do I need to know about the controls on this heated cabinet? Where are they located?	
What is the exterior finish?	
What is the interior finish?	
What other types of exterior finish are available?	
What type of heating system is used?	
What type and thickness of insulation is used?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ________________________________ heated cabinet.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase: ________________________________

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REFRIGERATORS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared and served?	
What types of food products will be stored in the refrigerator?	
What type of food pans will the menu items be in? Will the food products be individually plated?	
How often and for how many food items will this refrigerator be used?	
Does this refrigerator have the necessary capacity to allow for increased demand due to participation growth?	
How many refrigerator sections do I need?	
Do I need a reach-in, pass-thru, roll-in, or roll-thru refrigerator?	
Do I need a stationary or mobile refrigerator?	
What power requirements are necessary?	
Is the unit supplied with a cord and plug or is it permanently wired?	
What size compressor is in this refrigerator?	
How many amps does this unit use?	
What are the dimensions of the refrigerator? Will it fit in the space available in this kitchen?	

What is the life expectancy of this refrigerated cabinet?	
Is the refrigerator NSF and UL listed?	
What optional features do I need?	
What is the temperature range of this unit?	
Are legs standard?	
What type of pan slides do I need?	
How many pan slides do I need?	
Are pan slides permanently fixed to the refrigerator wall or are they adjustable?	
What type of door handles does this unit have?	
What type of doors are standard?	
Are half doors available?	
Are glass doors available?	
How sturdy and dependable are the brakes on the mobile unit?	
What type of thermometer is provided?	
How many interior lights are provided?	
Can the doors be re-hung if the standard hinge opening is not convenient in my kitchen?	
Is the refrigerator easy to use?	
Is the refrigerator easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this refrigerator?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	

SUGGESTED EQUIPMENT FOR CONVENTIONAL KITCHENS

RECEIVING AREA

- Receiving table
- Scales (optional)
- Heavy duty cart
- Hand truck
- Hand sink (desired)
- Fly fan

DRY STORAGE AREA

- Metal shelving
- Dunnage racks
- Can storage rack (optional)
- Utility carts

CHEMICAL / JANITOR STORAGE AREA

- Metal shelving
- Janitor sink
- Washer/dryer (optional)

CHILLED/FROZEN STORAGE AREA

- Walk-in freezer
- Walk-in cooler
- Cooler/freezer shelving
- Dunnage racks

VEGETABLE/ COLD FOOD PREPARATION AREA

- Work tables
- 2-compartment sink with drainboards
- Disposer
- Mixer (shared with production)
- Food processor
- Slicer (shared with production)
- Reach-in refrigerator
- Utility cart
- Utility racks
- Storage racks for pans
- Hand sink

MODIFIED DIET PREPARATION AREA

- Work tables
- Food processor
- Blender
- Individualized adaptive feeding equipment
- 2-compartment sink (shared with vegetable/cold food)
- Reach-in refrigerator (shared with vegetable/cold food)
- Transport equipment (if applicable)
- Heated cabinets (shared with customer service)

PRODUCTION AREA

- Work tables
- Baking table with mobile ingredient bins
- 2-compartment sink with drainboards
- Convection oven
- Tilting braising pan
- Steam jacketed kettle
- Steamer
- Range
- Ventilation system with utility distribution system
- Mixer (shared with vegetable/cold foods)
- Slicer (shared with vegetable/cold foods)
- Utility carts
- Reach-in freezer
- Reach-in refrigerator
- Deep-fat fryer with filter system (optional)
- Proofing cabinet
- Storage racks for pans
- Utility racks
- Scales

POT AND PAN WASHING AREA

- 3 compartment sink with drainboards
- Disposer
- Sink heater (optional)
- Storage racks for pans

WAREWASHING AREA

- Dishmachine
- Disposer
- Booser heater
- Hand sink
- Soiled dish table
- Clean dish table
- Pre-rinse sink with spray
- Racking shelf
- Tray dispensers
- Dish dispensers
- Utility carts

CUSTOMER SERVICE AREA

- Pass-thru heated cabinets
- Pass-thru refrigerators
- Heated serving counters
- Refrigerated serving counters
- Milk coolers
- Ice cream freezers
- Cashier counters
- Point-of-sale computer
- Ice machine
- Chilled water dispenser
- Tray dispensers
- Dish dispensers
- Utility carts
- Hand sink

CHILD NUTRITION OFFICE

- Computer
- Calculator
- Telephone
- Desk and chair
- Filing cabinets
- Bookshelves

What is the compressor warranty?	
Is an extended warranty available?	
What is the budget cost for this refrigerator?	
What do I need to know about the controls on this refrigerator? Where are they located?	
What is the exterior finish?	
What is the interior finish?	
What other types of exterior finish are available?	
What type of refrigeration system is used?	
What type and thickness of insulation is provided?	
Where are the evaporator coils located?	
Are heater wires provided around each door frame?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a training video that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
_________________________ refrigerator.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:
____
____
____
____
____
____
____
____
____
____
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APPENDIX F

SUGGESTED EQUIPMENT FOR CONVENTIONAL KITCHENS